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MONTHLY



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THE BRICKBUILDER

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GRAVE TOWERS AT KUM, PERSIA.

THE BRICKBUILDER

VOL. 15 No. 5

DEVOTED TO THE INTERESTS OF
ARCHITECTURE IN MATERIALS OF CLAY

MAY 1906

FIRE WASTE AND FOREST DESTRUCTION.

NO country, however great its resources, can long continue to stand a yearly fire loss of \$250,000,000. The consumption of wood per capita is also increasing in this country, and has risen from eleven to fourteen feet, board measure, per annum. With these two increases it is evident that the destruction of the forests and the destruction by fire are going along hand in hand toward our national bankruptcy.

The destruction of the forests means the loss of water-storing soil and the consequent washing out of the soluble plant food stored therein, and therefore the wasting of the fertilizing materials which would reproduce the vegetable growth.

It is therefore apparent to the least observant that we are surely burning the candle at both ends, and this double destruction should be brought home to the minds of the building public. The waste through fire of the products of the forests which have been incorporated into buildings brings about another element of destruction in the waste of other building materials and the contents of the buildings.

It is almost incredible that \$250,000,000 could be wiped out of existence in a year's time through fire losses, and yet we find people of intelligence willing to invest their money in buildings having wooden interior construction. Architects owe it to their clients, newspapers owe it to their readers, and builders owe it to their patrons to use all their influence toward the prevention of this extravagant and useless waste of good materials.

It is estimated by competent authorities that white pine lumber will disappear from the markets within eight years, and that the long leaf pine forests, which are rapidly giving way to the sawmills, will soon disappear and that structural and finishing lumber will rapidly advance in price. There are two ways of checking this waste; one is to curtail the consumption of lumber by using other materials for building, and the other is the reforestation of large tracts of land by the national government. Under existing conditions of ownership of land, this latter scheme is possible only to a limited degree, and then only on waste or government land.

The elimination of wood structural material from buildings is quite possible by a slight increase in cost over the ordinary methods of wood joist and stud construction, and the more elaborate the building the smaller the percentage of increase of cost. It is quite possible for an architect to make a comparison in each instance, and

if carefully done he will find that the greater part of the increased cost is in the floor systems and the partitions. When the very superior construction of the floors is taken into consideration there is no room for argument, as the shrinkage of the wood joist and the studs, with their attendant openings along the washboards and the cracking of plastered walls, alone are sufficient to condemn the use of wood in any but the cheapest buildings.

If the architect will use his knowledge and information with his client, he will find that it is possible in many instances to persuade them to use non-combustible construction, if the merits and the relative costs are properly placed before them. It is indeed the moral duty of every one connected with the building trades to stop the waste by fire and forest destruction, and no effort should be spared by those having the knowledge to disseminate it for the benefit of mankind.

Looking at it from an immediately practical standpoint, if \$250,000,000 is regarded as a yearly interest at five per cent it will cover an investment of \$5,000,000,000. Every intelligent man in the building trades can see that if this additional amount of money was *permanently invested* in building materials it would mean, not only more business for him, but easier living. Money that is burned up is wasted and ceases to earn money, and is wiped off as "capital account," and goes to the "loss account," and is absolute waste.

The replacement of burned material prevents its use in new structures which would in turn earn money and provide additional facilities for comfort and increase of business.

It needs some good hard talking on the part of those who know the truth about *waste* to make the average man understand that fire loss is *waste*, and not merely taking money from one pocket and putting it in the other, as many suppose.

An argument often advanced by the unthinking is that fires "put money into circulation." They seem to be unable to realize that money is merely the token of values, and if its interchange does not represent equivalent values, then one party to the transaction is not getting a square deal. It is always possible to either prove or disprove an argument by taking it to its limits. If it is a good thing, as some people argue, to "put money into circulation," then it might be possible easily to accomplish this, by say, having the government employ men to pump out the sea. Of course this needs no answer, neither does the argument of the unthinking people who argue that fire waste is a good thing because it "puts money into circulation."

Catholic Church Architecture.

BY C. GRANT LA FARGE.

(The church work shown in connection with this article is by Heins & La Farge.)

IN the discussion of ecclesiastical architecture as applied specifically to the building of Catholic churches in this country, perhaps we shall find it of interest to compare the views presented by the professors of that faith with the trend of opinion manifested by the adherents of the Episcopal Church. These involve principally the professional relations between the client and the architect, and the general question of style.

Let us look first at the professional relation.

There has been an enormous and widespread building of Catholic churches in America, extending over a considerable period of years, and so far as the Catholic clergy have had anything to say, in the columns of this magazine relating to their experience with architects, it has been to express what seems to be a fairly acute dissatisfaction, on grounds in the main of lack of professional integrity. This is a matter, on the one hand, of vital moment to the clergy charged with the responsibility of building; and on the other it is one of intense interest to those members of the architectural profession who desire to exercise their talents in the designing of churches.

If we examine the



CHURCH OF OUR LADY OF MT. CARMEL, TUXEDO PARK, N. Y.



INTERIOR, CHURCH OF OUR LADY OF MT. CARMEL.

Example of light, strong and easily built roof truss entirely of planks.



CHAPEL AT WEST POINT, N. Y.

great mass of the Catholic buildings here, what do we see? Certainly not a notable quality of contribution to that architectural achievement which is one of the most

striking manifestations of our national growth. In the great march of artistic development it has lagged pitifully behind, — poverty of construction; paucity of æsthetic idea; ignorance of the fundamentals of sound and traditional design to the point of illiteracy; inconceivable tawdriness of decoration and appointment; cheap shams and mock gorgeousness, where honest simplicity would have satisfied the

eye, and left the soul in tranquillity. There are exceptions to this, of course; woe betide the writer were it not so, but in the main the postulate holds painfully true.

Of Protestant building there is a different story to tell. It will not do to look too far back, for we should find ourselves in a time when the Catholic Church was without the means to express itself upon the soil of the New World. But since the time when it has possessed and employed those means, it is fair to make the comparison. During a part of that period it is true that Protestant church building has shared the general poverty of architectural resources that characterized our efforts in other directions, but it is also true that it produced examples notably in advance of the general average, such, for instance, as the work of Upjohn and Renwick. And coming down to our own time, the works of its architects which merit serious consideration, and frequently high praise, at the hands of their professional brethren and of the public at large, make a long list that need not be rehearsed; the pages of this and other technical journals conclusively exhibit the fact. The question we may properly ask is, whether the architectural achievements in

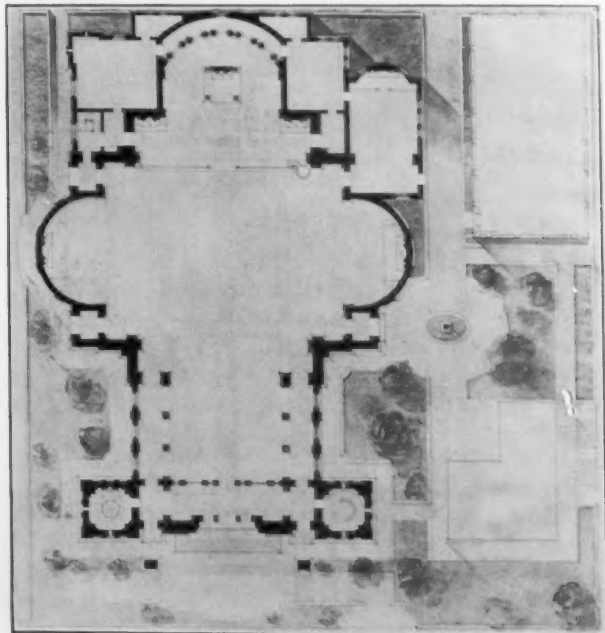


CATHEDRAL AT SEATTLE, WASH.

The building stands on a height overlooking Puget Sound, and will be visible from a vast distance, hence great importance is given to the towers.



PRESENT CONDITION OF BUILDING.



PLANS.

this particular field correspond in value, practically and ideally, with that of the architectural product of the time in the civic, the domestic and the commercial fields; and to this question the answer must be in the affirmative.

Now, in all that the Episcopal clergy have to say in their discussion of the subject in these columns there is no hint of distrust or dissatisfaction with the architects whom they have employed upon what may be designated as ethical grounds, — and surely they speak from a long and wide experience. We have then, to state it briefly, on the one hand, banal inferiority and the producer viewed with marked suspicion; on the other, a very fairly high grade of achievement, with presumably no disposition toward its authors other than that of counsel to aid them in the efforts yet before them. This is not to say, by any manner of means, that the valuable and suggestive papers contributed by the Catholic clergy

oldest of all the Christian creeds, its deep and abiding faith, its continuity and its power. Such a condition as is indicated must be to him a source of lively regret, and he most naturally inquires as to the reason for its existence.

One obvious fact appears: that the architects charged with the erection of Protestant churches have numbered among them the foremost men of the profession, men of authority, holding convictions and competent to maintain them, to guide their clients when guidance has been necessary; while, except in a few rare cases, the designers of the Catholic edifices are men who have failed to command either recognition from their fellows or any adequate measure of public esteem. There is no difficulty in determining who those are that may reasonably be expected to fall within the former category; Mr. Maginnis has indicated this so clearly that no more need be said.



CHURCH OF THE BLESSED SACRAMENT, PROVIDENCE, R. I.

FACADE: Red brick, red terra cotta and brownstone. Church begun in 1899 and still lacks the finish of vestibule and the stone entrance steps. The triple arches of entrance will stand open, the bronze doors of the inner vestibule being set quite far back. This will give deep shadows under the arches. The campanile is built with a vertical curve or entasis.

NAVE: The cinquefoil ceiling is of cypress wood. All the lower walls clothed with marble. The marble has been used very carefully to make a well-considered color scheme, increasing in richness as it goes toward the sanctuary. The electric light brackets are temporary.

are not filled with practical advice that we owe it to ourselves to lay to heart, as well as with the exposition of just those points of theory which they, above all others, must advance and from which our greatest stimulus must come. But it is the one aspect alone that is just now under consideration, and that only because what we seek is a true mutual understanding. Whatever will shed light upon that is too valuable to be passed by in a matter of so great concern as this is at the present time. No thoughtful architect who regards his calling with a proper pride or a due sense of its serious responsibilities, no architect of scholarly attainment — certainly no such architect who belongs to the Catholic faith — but must keenly appreciate the momentous importance of this problem that lies before his profession, — to give adequate structural expression in his native land to this

Now why should there be this divergence in practice between the opposite bodies? It is not easy to accept quite the view advanced by Mr. Maginnis as to the preoccupation of the church with problems of development and organization. The history of past epochs does not seem to point this way, for to instance only a few, the time that saw the beginning of the great abbeys and monastic institutions of France was one that demanded of the church no less than the establishment of a whole scheme of civilization; and the stupendous flowering of the Gothic grew from the midst of a struggle, both religious and political, as great as any in which she has ever been engaged. And for some nine hundred years she wrestled with so serious a problem as the celibacy of the clergy, — from before Calixtus I in the first quarter of the third century until the final settlement in 1027, — a period that covers

the exquisite beauty of Byzantium, Ravenna and Romanesque Italy, as well as the vast body of precursors of the Gothic of France. Instances, too, are not wanting — the quality of Mr. Maginnis's own work shows that — in our own moment of time. One naturally hesitates to dwell upon personal experience, but it is strikingly true of the writer's that the client who has been most sympathetic and open-minded, most keenly appreciative of artistic necessity down to ultimate detail of every sort, most patient under the limitations of material resource for many years, has been the pastor of a parish that presents all the difficulties that beset the growth of our typical Catholic communities in New England.

But Mr. Maginnis carries conviction, indeed, when he

beginnings of that local culture which is, after all, but a pretty recent affair. This isolation, moreover, and the composition of the parishes, at the same time that they have separated the church from much of the artistic activity of the more leisured and wealthy sections of the community, have also contributed to produce a fertile ground for the action of a sort of parochial politics, under which the artistic destinies of the church have been too often confided to the incapable hands of those chosen for other reasons than proved fitness. To determine the fact is to indicate its remedy. Many of the conditions hastily touched upon above are passing. — have passed in large measure, and with their disappearance it is not too much to expect that the church will play a part as distinguished



CHURCH OF THE BLESSED SACRAMENT, PROVIDENCE, R. I.

SOUTH TRANSEPT: Shows side altar: partly in marble and partly in modeled plaster relief. The panels in wainscot bearing crosses are ultimately to be replaced by the Stations of the Cross, in colored relief. The rectangular panel over altar and the circular space in the wall above are to receive figure paintings.

HIGH ALTAR AND BALDACHINO: Dome of copper gilded, rest of marble. All the details, even to the crucifix and altar candlesticks, designed by the architects.

points out the detachment of the clergy and the influence exerted by that condition in saying: "The high standards now prevailing in our civic and domestic architecture, however, afford the most pertinent evidence of the remarkable elevation in national taste. That the Catholic Church will come into more sympathetic touch with this beautiful development is inevitable, as the conditions which have made for its detachment become gradually relaxed."

The church here in the beginning was regarded as an alien; its large and rapidly growing parishes have been made up for the most part of the poor and the newly arrived citizen, and under such circumstances it has not been strange to find it isolated to a great extent from the

in the development of American art as she already has in other fields; that she will come in fact into her birth-right.

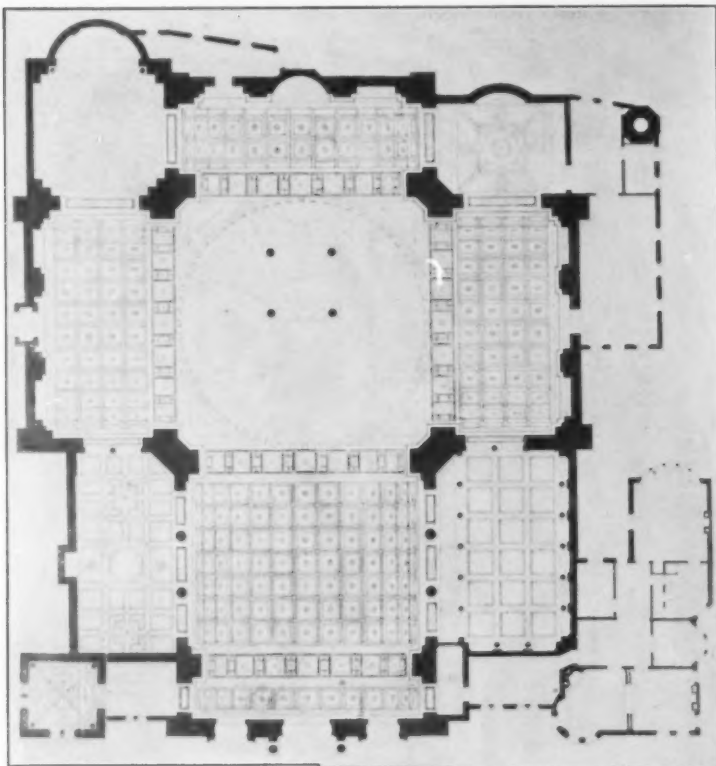
When we lay our course upon the sea of discussion of style we are in troubled waters, vexed by cross-currents of conflicting opinion, and lashed by the winds of vehement controversy. They roar from the Gothic North, and rage from the Renascent South; dark squalls scurry out of the Byzantine East, and from the West queer little whirlwinds born of that iridescent dream, the "American style," dance their brief fantastic way through the confusion; while in certain latitudes there is easy sailing in the favorable trade winds of Beaux Arts Paris. The vehemence rises sometimes to passionate heights, and

goes so far that it even has become a curious manifestation of the *odium theologicum*, on the part of one of the most brilliant contributors to these papers, Mr. Cram, who, forgetting his own previous animadversions upon the sad example of Ruskin, would have us believe that all of art and religion, morality and the Divine Glory, shall be forever imprisoned in what Henry James must forgive us for calling "horrific vitreous Perpendicular." Yet, however the intending navigator may at first feel em-

dominant and its most natural expression through the inspiration of the English Gothic.

The Catholic clergy, on the other hand, while also giving vent to the idea that a wide range of choice is to be contemplated, show no general tendency to fasten upon any one style as the most suitable to the concrete embodiment of their church. To lay this to indifference on their part, to failure of attention or absence of the interest necessary to produce personal conviction, in a matter of such immediate consequence to the welfare of that which lies in their charge, would be unfair. Distracted they may be by the contrariety of view among the architectural practitioners, or disheartened frequently by the failure of those whom they have unfortunately and unwisely confided in to give worthy expression to such aspirations as they may themselves have had; lacking in experience of the artistic problem, but not indifferent, far from it. Rather would it seem theirs to believe that Catholicism and catholicity go hand in hand; that they may feel the inheritance of their church to be as wide in time and space as all of Christianity.

If this be so, it has a weighty bearing upon the question of style to-day. For it means that the

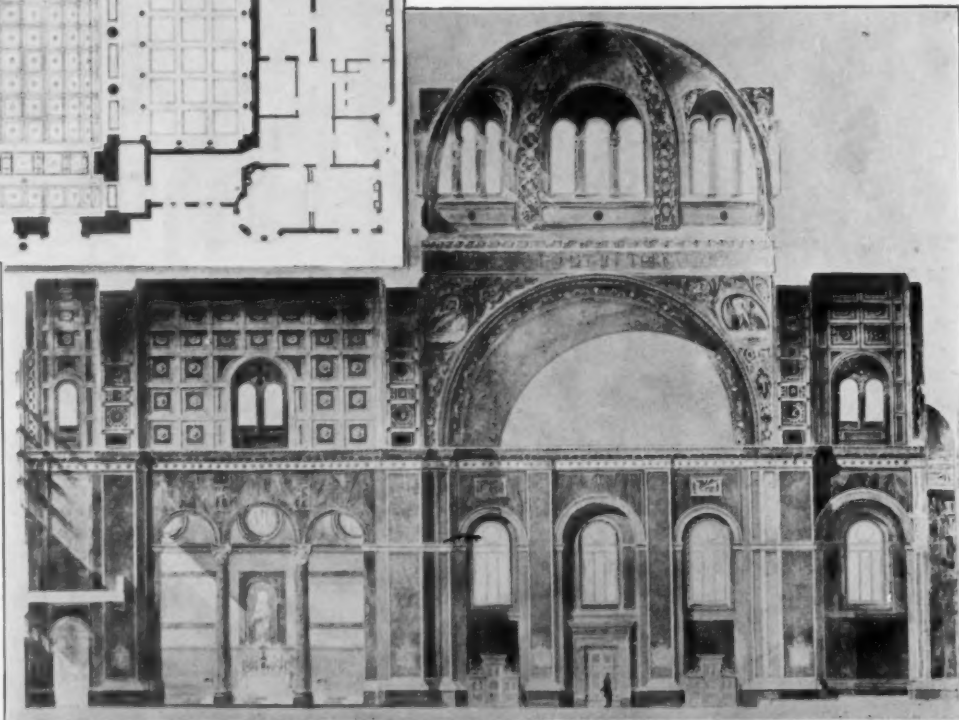


ST. MATTHEW'S CHURCH,
WASHINGTON, D. C.

Plan and longitudinal section. The church is only partly built. The interior is to be of extreme richness of color, marbles and mosaic being extensively used. The high altar will stand under the dome in a low enclosed choir.

barrassed in his choice of pilot through this turbulence, reflection should convince him that the real meaning of it all is life—pulsing vitality, throbbing interest; all in short that is at the opposite pole from the hopeless dullness of self-satisfied inert stagnation.

In comparing the views of the clerical contributors, one interesting point forces itself upon our attention. The Episcopal clergy freely admit the claims upon us of various styles, and recognize their inherent charm, but this is by way of being, as it were, the expression of individual taste; the consensus of opinion is in the direction of an admission that the Anglican inheritance is



church is not French nor English, Italian nor Spanish; not Byzantine, Romanesque, Gothic nor Renaissance; bound neither to the time when the Pagan basilica was diverted to the uses of the Christian church, nor to that of the glorious mediæval efflorescence, nor to the days of the Great Separation; but that potentially all of these are hers, so that she make wise use of them according to site and climate, material resources and structural needs.

The Tarsney Act.

HISTORICAL REVIEW.

BY GLENN BROWN.

THE history of Federal architecture is interesting, as an example of the more or less vague methods adopted by a democracy in the treatment of art.

It is well to note that in our early history the Presidents were given direct control of Federal buildings, and Washington, Jefferson and Madison personally interested themselves in this work; each endeavored to select the most skillful architect of his day, and insisted on well-established forms and proportions being applied to our buildings. The selection of Thomas U. Walter as architect for the extension of the Capitol, in opposition to Congress, was the last instance of the personal action of a President, until President Roosevelt established the location of the Agricultural Building on the Mall in 1904.

In 1855 Mr. Walter made plans for the extension of the Treasury Department. A. B. Young was appointed superintending architect of this building, acting under Captain Bowman, Corps of Engineers; with this appointment the office of the Supervising Architect of the Treasury Department originated. With such a convenient corps of official experts at their command, it became the custom of Congress to place custom houses, post offices and United States courthouses under this office.

When this custom became an established practice there was a gradual depreciation in the character of Federal architecture, the work becoming distinctly inferior in artistic qualities to private work designed by the best qualified architects.

It proved unfortunate that appointments to this office, with three notable exceptions, were made a matter of political expediency, and politics, not merit, governed in the appointment of the larger number of office assistants as well as in that of the chief.

The American Institute of Architects, with a keen appreciation of this rapid depreciation in the character of our national architecture, after several years' consideration of the subject in 1875, formulated a Bill to regulate and improve the Federal practice. During the same year William A. Potter, Supervising Architect, who fully appreciated the necessity of a reorganization of the office, introduced a modification of the Institute Bill. This Bill the Institute approved and zealously supported. Modifications of this measure and entirely new ones were introduced from 1875 to 1892; several of these measures being advocated before Congress by the Institute. During the presidency of Edward H. Kendall, the directors of the Institute introduced a Bill which was modified and known as "Tarsney Bill." The committees of both the House and Senate accorded the directors and representative architects from various sections of the country a hearing, after which they reported the measure as modified favorably, and it became a law February 20, 1893.

THE TARSNEY ACT.

(U. S. Statutes at Large, Vol. 27.)

"CHAP. 146. — An act authorizing the Secretary of the Treasury to obtain plans and specifications for public buildings to be erected under the supervision of the

Treasury Department, and providing for local supervision of the construction of the same.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized in his discretion to obtain plans, drawings, and specifications for the erection of public buildings for the United States authorized by Congress, to be erected under the supervision and direction of the Secretary of the Treasury, by competition among architects under such conditions as he may prescribe, and to make payment for the service of the architect whose plan may be selected out of the appropriations for the respective buildings: *Provided*, that not less than five architects shall be invited by the said secretary to compete for the furnishing of such plans and specifications and the supervision of such construction: *and provided further*, that the general supervision of the work shall continue in the office of the Supervising Architect of the Treasury Department, the Supervising Architect to be the representative of the government in all matters connected with the erection and completion of such buildings, the receipt of proposals, the award of contracts therefor, and the disbursement of moneys thereunder, and perform all the duties that now pertain to his office, except the preparation of the drawings and specifications for such buildings and the local supervision of the construction thereof, the said drawings and specifications, however, to be subject at all times to modification and change relating to plan or arrangement of building and selection of material therefor as may be directed by the Secretary of the Treasury.

"Approved February 20, 1893."

Within a month after the passage of the act John G. Carlisle became Secretary of the Treasury. A delegation from the Institute urged him to select architects for future Federal buildings under the new law. The secretary declined to follow this advice on the ground that the act conflicted with laws already in operation, stating that there was no clause in the law repealing other laws in conflict therewith.

Lawyers of established reputation gave favorable opinions on the working qualities of the law, but as the act was not obligatory, and its operation was in the discretion of the secretary, Mr. Carlisle refused to act under its provisions.

This refusal of the secretary caused the noted Burnham-Carlisle correspondence. D. H. Burnham at this time, 1894, being president of the Institute, conducted the campaign for good architecture with great force and determination. The matter was taken up by the technical and daily press in all sections of the United States. Although this discussion had no effect upon Mr. Carlisle, it called the attention of the intelligent and thinking people of the country to the degraded character of our Federal architecture and the unbusinesslike methods of conducting the work at this period.

The facts brought out during the discussion proved conclusively the inferior character of design, the excessive cost of office work and building construction, and the unreasonable time required for the erection of government buildings.

The Dockery Commission, experts appointed to investigate the business methods of conducting various

departments of the government and to suggest changes that would economize, simplify and better the conduct of government business, made a report on the Supervising Architect's office May 25, 1894. In this report they quote the only laws under which the Supervising Architect's office is now operated—the Sundry Civil Act, March 3, 1875, and the Tarsney Act, February 20, 1893. This commission recommended competition under the later act, as well as the reorganization of the Supervising Architect's office into a public building bureau to represent the government, and advised that there would be a saving in expense to the government by giving out the work to private practitioners at the regular rate of five per cent.

The publicity given the matter by the press and the investigations by those in authority prepared the way for putting the act in force under the new secretary, Lyman J. Gage, as one of his early official acts. Under his direction and with the advice and assistance of the officers of the Institute, a programme was drawn August 20, 1897, for the Norfolk, Va., Courthouse and Post Office. The drawings were opened October 12, 1897, and the jury awarded the work to Wyatt & Nolting of Baltimore. The Ellis Island Immigrant Station was awarded to Boring & Tilton, December 7, 1897; and the Post Office and Custom House, Camden, N. J., to Rankin & Kellogg, March 1, 1898. These were followed by the awards to Cass Gilbert of the New York Custom House, September, 1899, and of the Baltimore Custom House to Hornblower & Marshall, June 14, 1900. From 1900 to the present time, the following awards for Federal buildings have been made: Allentown, George Bispham Page; Atlantic City, Davis & Davis; Battle Creek, A. Kahn; Cleveland, A. W. Brunner; Green Bay, German & Lignell; Hammond, J. T. Hutton; Huntington, Parker & Thomas; Indianapolis, Rankin & Kellogg; Kankakee, Pond & Pond; Marblehead, Peters & Rice; Nashua, F. M. Wakefield; Providence, Clarke & Howe; San Francisco, Eames & Young; Superior, Barber & Barber; Wheeling, Marsh & Peter; Vincennes, Vonnegut & Bohn; Zanesville, George F. Hammond. Although the final selection has rested with the Secretary of the Treasury, he has in every instance given the work in accordance with the selection made by the expert jury.

METHOD OF SELECTING COMPETITORS.

A carefully selected list is prepared giving the names of architects who have proved by their executed work, their capacity in design, construction, and executive ability, for the conduct of large work. This list is submitted to the Secretary of the Treasury and from it he selects a limited number of competitors.

In this selection, qualifications being considered equal, consideration is given to the convenience of the residence of the architect to the building to be erected.

First, acting upon a ruling of the Secretary of the Treasury, it was the custom to select half the competitors for their known skill and ability and half for political expediency. The competitions have shown that the competitors selected for their known skill have submitted distinctly superior plans and designs, and no competitor who has been selected for political reasons has presented a scheme of sufficient merit to win. When this fact had

been clearly demonstrated by experience the Secretary of the Treasury changed his ruling and now all competitors are selected from a list of architects, any one of whom, as shown by his executed work, is qualified to undertake building for the Federal government. In making the selection of competitors, due consideration is given to the magnitude and character of the building to be constructed.

METHOD OF CONDUCTING COMPETITIONS.

The regulations for the conduct of competitions under the Tarsney Act were issued by Secretary of the Treasury Lyman J. Gage, July 3, 1897.

The broad principles of the regulations were:

1. The selection of at least five architects of good professional standing as competitors.
2. Jury of two experts and the Supervising Architect of the Treasury to report on the merit of the plans.
3. The award to the successful competitor of the preparation of plans and the supervision of the building.
4. A fee of five per cent on the cost of the work up to \$500,000, three and one-half per cent on next \$500,000, and two and one-half per cent on an excess of \$1,000,000.
5. No unsuccessful competitor has a claim against the government.
6. Reserved the right to reject all designs in case none were considered suitable.
7. Detailed estimates of cost to be submitted.
8. Competitors, by violation of conditions or an attempt to influence the jury, forfeited all privileges.
9. No member of the jury to have direct or indirect interest in any one of the designs submitted.
10. Submission of drawings and description without any distinguishing mark.
11. Competitor's name in plain sealed envelope.
12. Jury to place out of competition any set of drawings which violated any of the conditions.
13. The selection of one of the designs by the Secretary of the Treasury, and its approval by the Postmaster-General and the Secretary of the Interior, to be final and conclusive.
14. The secretary reserves the right to remove the architect or revoke his commission if found incompetent, or an improper person, allowing equitable compensation for work already done.
15. The architect to make full working drawings, modifying any of his competition plans to meet further requirements.
16. Further clause in reference to modification and revision of plans.
17. The commission or fee of architect to be computed on the actual cost of construction, not including furniture, gas and electric light fixtures and electric light plants.
18. The commission to be in full for architect's services, including traveling expenses.
19. The architect shall be paid one-fifth when preliminary drawings are completed; three-tenths when working drawings are completed, and a percentage monthly on the basis of the work performed.
20. Until the actual cost of the building is determined the fee is based on the proposed cost, and finally upon the actual cost of the building when completed.

21. The department to provide a superintendent of construction satisfactory to the architect.

22. The architect to provide one set of tracings of all drawings for the use of the government, the department to make mechanical reproductions.

23. Return of drawings to unsuccessful competitors, and no use of part of their plans will be made without the consent of the author.

24. Payments will be made on the construction, upon vouchers certified by the architect and countersigned by the department.

25. The Supervising Architect will receive proposals and determine the manner in which the various branches of the work are to be let.

26. All contracts, except for exigency expenses, shall be advertised, and awarded by the Supervising Architect to the lowest responsible bidder.

27. The Supervising Architect is instructed to make the necessary provisions to carry out these regulations.

28. The regulations are subject to change or modification at the pleasure of the Secretary of the Treasury.

The regulations have been modified from time to time. An important modification was made in the case of the New York Custom House, May 11, 1899, when the fee for professional service, instead of the sliding scale for constructions of over \$500,000 (clause 4), was fixed at five per cent on the total cost of the work. The Ellis Island building was the only structure that has been awarded under the sliding scale. In the rules for the Baltimore Custom House, the number of experts on the jury was increased from two to four (clause 2). Clause 21 has been changed, abolishing the office of superintendent and detailing an inspector for the work. February 24, 1903, a new set of regulations was issued embodying the above-mentioned changes, at the same time rewording and rearranging several of the clauses and adding a requirement that no employee of the Treasury Department shall enter any competition held under these regulations.

In addition to the general regulations, a specific programme has been drawn for each building. This programme gave the contemplated cost of the proposed building, the uses for which it was intended, and the number of rooms and floor area required for each. The number and character of the drawings required were also given in the programmes as well as the date for, and methods of, their delivery. In addition to the drawings an estimate of cost has been required, in each case giving the cubical contents of the building, the exterior surface of all stonework, and the amount of all contracts necessary to complete the building, exclusive of mural paintings, electric plant, gas and electric fixtures, and the architect's fee.

METHOD OF MAKING AWARDS.

The drawings and descriptions are received at the Treasury Department on a specified day without names or marks of identification.

The jury, composed of four architects of established reputation, together with the Supervising Architect meet at the Treasury, when the packages containing the drawings are opened and each sheet of drawings, the descrip-

tion, and the sealed blank envelope containing the name of the competitor of each set, is given the same number. The numbered and sealed envelopes containing the names of the competitors are laid aside unopened. The drawings are then compared, studied and criticised by the members of the jury, the drawings showing the least merit being gradually eliminated. The final selection is made by a vote of the jury, and in ninety per cent of the cases the opinion of the jury has been unanimous. The juries have been conscientious in the performance of their duty, taking from one to three days in making the selection according to the magnitude of the building and the merit of the designs submitted.

The jury after making their decisions report to the Secretary of the Treasury, who in each instance has confirmed their award. After the award has been approved by the Secretary of the Treasury the envelope numbered to correspond with the successful design is opened by him and the name of the successful competitor is announced.

After the publication of the designs it has been a peculiarly unanimous feeling in the profession that the most meritorious scheme has in each case been selected, and this feeling extends to the competitors except in a limited number of cases.

The only case of friction developed was the decision on the New York Custom House, which was one of the early competitions. The jury had presented to them two schemes of nearly equal merit, and they determined to open the envelopes of each set and invite the competitors who submitted the drawings in these two sets to appear before the committee and give an explanation of their schemes. This was done, and while it is doubtful whether the judgment of the jury was influenced by the explanations, it created a spirit of antagonism, a desire of other competitors to explain their schemes, and was followed by a determined effort to throw aside the award of the jury. This was unfortunate, and disaster was averted only by the determined stand of Secretary Gage in upholding the award of the jury.

The jury felt that an error of judgment had been committed in opening the two envelopes and allowing the competitors to appear before them. After this experience the Secretary of the Treasury has required the decision and award to be made before the sealed envelope containing the name of the competitor is opened.

There is a general feeling that the character of design will clearly indicate to the jury the name of the competitor. I have heard from a large number of the jurors, and have acted on four juries myself, and in few if any cases did the character of the design indicate the architect, and the jury were in the dark as to the successful competitor until the envelope had been opened by the Secretary of the Treasury and the name disclosed.

There has been only one instance where the jury felt that a competitor had placed indicating marks on his drawings. This set of drawings was promptly laid aside and their merits were not considered.

The country is to be congratulated upon the fact that in the twenty-two competitions, the profession feel that awards in every case have been unbiased and that the best scheme submitted in the competition has been selected.

It is commonly supposed that an effective drawing or a brilliantly designed elevation would be the winning factor in a competition of this character; strange to say this has had little influence with the juries, and a large percentage of the awards have been made on the merits of the plan for the building. The arrangement and grouping of the rooms for conveniences of business, symmetry, and monumental effects have been the controlling factors in making the awards.

After the award has been made, a contract in accordance with the regulations and programme has in each case been made between the architect and the Secretary of the Treasury acting for the United States.

GOOD RESULTS OF THE TARSNEY ACT.

The various Federal structures erected under the United States government from 1860 to 1896 are distinctly inferior as artistic productions to buildings of the same character designed by private architects. This must have been due to the selection of the Supervising Architect and his assistant, usually for political reasons. Messrs. Potter, Hill and Aiken may be mentioned as men of such ability as to have produced good results under the hampering conditions which surrounded them. Under the direction of Secretary Gage, in 1897, the Supervising Architect and his assistants were placed under the Civil Service rules, and the architect and his assistants have since that date secured their positions by merit under Civil Service examinations. James Knox Taylor was the first to secure the office in this way, and in the past eight years the character of designs made in the office has been of a high grade. The large amount of important private work in the past year has induced many of the designers and draughtsmen, who have shown their ability, to leave the office of the Supervising Architect and enter into private offices or independent practice. What effect this will have upon the character of work in the office is yet to be shown.

The Secretary of the Treasury, Mr. Shaw, in a communication to Congress, says: "I have to state that the experience of the department with the seven buildings completed and under construction has been on the whole favorable as to merits of designs and quality of constructive work."

Under the Tarsney Act it must be conceded that the work is immeasurably superior to any building done by the government from 1860 to 1896, and it, together with the merit system which now rules in the office, has been a material factor in uplifting the character of work done by the corps in the Supervising Architect's office during the past six years.

The successful competitions under this law have induced other departments of the government and municipal authorities to select architects under regulations similar to the provisions of the act. Among such competitions may be mentioned the Municipal Building, the Agricultural Building and the Municipal Hospital in Washington.

It has also been the cause of many municipal authorities conducting competitions on a higher plane with reasonable restrictions and under proper safeguards.

Burnt Clay Construction at San Francisco.

BY CHARLES H. ALDEN, JR.

ONLY a personal investigation of the ruined city of San Francisco enables one to realize the extent of the destruction to buildings and property in the catastrophe of April 18, 1906. To the observer, the actual destruction will undoubtedly be found far in excess of any ideas gained from outside information. No other conflagration gives us a basis for comparison in extent of devastated area. Here practically an entire city was destroyed; the buildings remaining unaffected on the outskirts are so comparatively few in number and unimportant in character that they hardly affect our impression of the total disaster. Entering from the bay, the natural gateway of the city, and walking through the business thoroughfares, the ruined and desolated areas extend as far as the eye can reach. Here there is no "fire line" to mark the limit of destruction. The few buildings in the devastated area which have escaped stand isolated with only their shells intact, gutted by the flames, but bearing witness to the strength and resistance of modern building construction.

The burnt clay products are found to have been extensively used in various ways, very generally in connection with wood and other combustible construction. A first impression leads one to form the idea that these products have failed in their fire-resisting qualities. A further study of the ruins and consideration of the causes of the disaster modify the opinion to a belief that the material itself was not at fault, but that the wholesale destruction and various other kinds of damage were due to the unusual character of the destructive agencies and the very incomplete and misguided manner in which our knowledge of the art of fireproof construction has been practised. We know how to build strongly with fire-resisting materials and in a practically fireproof manner, but the necessity of limiting cost and rushing the work to completion prevents our taking advantage of sound methods and building safely, as we ought to be compelled to do by the city ordinances. San Francisco seems to have been particularly lax in this regard. Combustible buildings have been built in the thickly settled portions of the city, and many of them are of recent origin.

The causes of the destruction of the city were three;—earthquake, fire and dynamite. The damage caused by each separately is at present impossible to determine. The earthquake was felt suddenly and continued intermittently with varying intensity for a considerable period. It was followed closely by the fire, and during and after the fire large quantities of dynamite were used on many of the buildings without apparent method. That the earthquake alone could have disastrous effect is evident from its action on the surface of the ground and from buildings known to have escaped the fire and dynamite. The effects of the shock, however, were found to be very elusive, one portion of a building being seriously affected while another portion entirely escaped injury. The character and actual effect of these shocks do not seem to be clearly understood; we can only say that firm ground and solid foundations were better able

to resist, than the more plastic soil and filled-in land, which was seriously affected. The new Post Office building was in a locality violently shaken, the ground in front of it being raised and depressed, causing undulations varying from four to five feet from the horizontal. The building itself was but slightly damaged, some cracks appearing in the outside stonework and slight damage was done to the interior partitions, which are of terra cotta. The universal extent of the quake is shown in the wholesale destruction of chimneys in the surrounding districts.

The effects of fire on the brick and terra cotta structures are not easily separated from the destruction by dynamite. The fire-resisting qualities of modern fireproof construction have been tested in other conflagrations. That at San Francisco teaches nothing radically new as to the effect on the material, but its imperfect use is responsible in most cases for the disastrous consequences. Intense heat caused some chipping and discoloration to

occupancy within one month from the time of the disaster.

Near the City Hall and Post Office is an eight-story brick building with terra cotta walls and floors in good condition. It is now being used for banking purposes. The columns are fireproofed by four-inch terra cotta blocks which were not properly anchored or wired in place and in some cases they have fallen off. Pipes are carried next to the columns inside the fireproofing. The terra cotta partitions are bonded to the column casings, and where partitions have failed the casings are torn from the columns. This method of column protection is noticed in other buildings, notably in the Crocker, a large granite and terra cotta structure in the heart of the burnt district. The floors here are of terra cotta tile of side construction and are well preserved; any structural damage that has been done is believed to have been the result of dynamite. The safe deposit

"Here there is no 'fire line' to mark the limit of destruction."



"Fairmont Hotel (exterior walls of terra cotta), though gutted, still crowns Nob Hill, its outer walls practically uninjured, its floors of concrete ruined."

architectural terra cotta, but of all materials standing it is by far the best preserved.

The exact destruction by dynamite explosion cannot be determined. Portions of buildings which were stated on good authority to have been intact after the fire are now reduced to ruins through the action of the explosive inside their own walls or in neighboring buildings. Dynamite certainly had a disastrous effect on all forms of building construction in San Francisco. The effect on walls was similar to that caused by the quake as it produced cracks and scaling.

Most of the buildings in the burnt area had bearing walls of brick with floors of timber construction. The falling of the brick walls was caused largely by the poor quality of the cementing material. In most cases the bricks were separated from each other merely by the shock of falling, showing little adhesion of the mortar.

The Call Building is conspicuous among those that survived the ordeal. It was one of the best built in the city, being of terra cotta fireproof construction. It was structurally intact before the use of dynamite on surrounding buildings, and will be repaired, and ready for

A line of steel skeleton, burnt-clay-clothed structures.



"The few buildings that have escaped destruction bear witness to the strength and resistance of modern building construction."

vaults in the basement are uninjured and are in present use. The end construction method of laying the floor tile found in another building shows damage to a greater extent, but a comparison of the two methods is useless in this instance, for the two buildings were undoubtedly subjected to entirely different conditions. Another method of terra cotta flooring is found in the Emporium, a large store building also in the heart of the burnt district. These floors are thin segmental arches with terra cotta covering enclosing the beam. The workmanship appears to have been totally inadequate, for the six upper floors have entirely disappeared, leaving portions only of the two lower ones in place. The column protection is also of the type mentioned before, and much of it has been shaken off.

Two interesting terra cotta fronts remain standing in this portion of the city. They belong to a building of otherwise combustible construction built around a low frame building occupying the corner. This corner building has been entirely destroyed, and of the other building the fronts alone remain standing, chipped and blackened to a slight extent, but bearing witness to the

incombustible quality of architectural terra cotta. Other isolated fronts appear in other portions of the city and are, in the main, fairly well preserved. One exception only was noted where the terra cotta was of a peculiar reddish color and did not seem able to withstand the action of the heat. In cases where stone was used,—granite being used to a considerable extent in the lower portions of the buildings,—the work is badly spalled.

Apart from the business center of the city, but still in the devastated area, the St. Francis Hotel shows interesting effects of the fire. It is thirteen stories high, built around a court, and faces a park. The two lower stories are of stone, the upper stories of brick, surmounted by a galvanized cornice. The stone is badly spalled and the cornice has disappeared, but the brick is left in good condition. The court is faced with brick, with no apparent tie to the backing, and has peeled

confused, examples are clear of structural methods and details which should be avoided, and if other methods had been employed it is safe to say that the buildings would have a very different aspect, in spite of the serious destructive agencies to which they were subjected. The protection of columns by metal lath and plaster is inadequate, as shown in the Fairmont Hotel and many other instances. Terra cotta blocks built loosely around the columns and not secured in place may have resisted the fire in some instances, but a different condition would have been found if the columns had been actually built in solid, as is often required in other cities. This was done in some instances in San Francisco and the work was found to be intact.

The conclusion arrived at after the Baltimore fire, that metal ties for face brick were ineffectual, does not seem to have held in this instance, for here corrugated metal



THE CALL BUILDING.
Built of burnt clay.

badly. Inside, the structure is nearly intact, although subjected to a fearful heat.

Another hotel, the Fairmont, is six stories high, prominently situated on the slope of the hill to the northwest, a conspicuous landmark as one looks across the devastated area. This building was not completed at the time of the earthquake and fire. The lower story above the foundation is of granite and the portion above entirely of terra cotta. The outside of the building is in good condition, except for the spalling of the stone, and discoloration of the terra cotta, which can be easily removed. The inside tells a very different story. The column protection is of expanded metal and plaster. This method of protection is also applied to the beams in the floors. As a fireproof protection it proved of little value, for the columns have seriously failed, buckling into a great variety of shapes.

Although the causes which led to the ruin of the city are of a complex nature and present conditions somewhat



THE CITY HALL.
Built of stone.

ties appear to have held the face brick securely. Probably conditions were entirely different, and it is difficult to form general conclusions in this case as in many others.

That better methods of building should be required is the obvious lesson to be drawn from the San Francisco ruins, and the people appear to be inclined to profit by it. How much they will profit will be shown in the new city which seems destined to be built in the near future.

The man with the panacea for all building evils is on the spot, working overtime. Will San Francisco become the experimental ground for every quack idea, or will her people give to the world a new city, created from those materials and by those methods which give beauty and permanence?

The one lesson for all parties who are identified with the building interests of this country is, that sane and sound construction is the only real safeguard against calamities of this sort.

The position that San Francisco has occupied on the Pacific Coast is not to be gainsaid because of the catastrophe which has overtaken her, and brains and money will not be lacking to put her again in a commanding position. It is the belief also that the civic possibilities will not be so wholly ignored in this instance as they have been in the cities which have suffered so severely in the past. Furthermore, I believe this fire will open a way for an architectural opportunity such as the country has not witnessed before.

In San Francisco the opportunities will await the architect rather than the engineer. We do not need an engineer to tell us how to tie the architecture and the construction into one. We do need architects to properly treat the bones of our buildings, and the opportunity of rebuilding the city is distinctly one of architecture. We know by the best of evidence that the structures which were built upon honor and upon recognized sound principles suffered comparatively little damage from either earthquake or fire; and if, in the rebuilding, her people will only take the time to start right, will not allow themselves to be rushed into ill-advised rebuilding as was the case at Baltimore, will recognize the obligation of working out pretty carefully a general scheme before indiscriminate building permits are issued, the new city will have opportunities such as no other except Washington has ever enjoyed. And if San Francisco is to command the confidence of the investor, is to receive the money backing which is so necessary to all large building operations, it is absolutely essential that the first step taken shall be the deliberate study of the general problem.

It is hardly conceivable that San Francisco can quite dare to neglect the splendid opportunities of a field swept almost clean for new ideas. Many of the buildings, of course, are still standing. The location of some of the prominent structures is not likely to be changed, but whoever is intrusted with the task of mapping the city of the future ought to have a very free hand, and the new San Francisco need suffer very little from past inheritances if only the forethought is taken in time.

While the old city was developing the natural topographical lines were entirely ignored; the business quarter thrust itself out into the bay; streets were carried straight over almost impossible hills; and the most expensive portion was the poorest in natural advantages. The city was poorly planned and worse built. In the rebuilding the filled-in flats cannot be ignored and will again become centers of business, but in the reconstruction the fact should be borne in mind that these filled lands proved to be the most unstable sites for building operations, the earthquake doing far more damage there than on the main land. Consequently one of the first rules to be laid down should be that heavy buildings must be carried clear through the filling and down to a solid natural bottom. Any one who is familiar with conditions in Chicago will remember how for generations the city was built upon a quaking bed of mud until General Sooy Smith had the courage of his convictions and carried foundations down to the rock. This is what ought to be done in San Francisco.

Beyond this, however, if the buildings of the future are to be safe against a recurrence of just such disasters

the restrictions of height must be absolute and far more than they are at present. It is one of the inconsistencies of our business life that in these days of rapid transit and the telephone the tall building should have obtained such a stronghold, and in the rebuilding of San Francisco the aggregate advantage to the city as a whole will very likely be measured pretty fairly in an inverse ratio to the limit of height of buildings. The tall building construction enormously develops a small locality, while restriction of height forces building to spread over a larger area and benefits a greater number of owners. Quite aside from the æsthetic effect there is surely every good business reason for an extreme minimizing of the heights of buildings which are intended to resist such cataclysms as this.

It should not be assumed that the steel frame construction implies tall buildings. That type was adopted in the first instance as an economical constructive measure to reduce the amount of floor space given up to walls in the lower story. For a number of years the system has been developing towards a rigidity of all its members, and the necessity for an elastic construction has not always been considered. The earthquake shows how essential it is that buildings of this character in that geological neighborhood should be able to give without breaking, should have a certain degree of flexibility. In very few instances was the steel frame very materially damaged; but in many cases the envelope, whether of one material or another, was shaken loose or fell out as a result of distortion, so that the result to the building was nearly as bad as if the steel frame had been dislocated. We must in future pay more attention to the tying of the envelope on to the frame. We cannot depend upon a rigid material. Anything approaching a monolithic construction, even though reinforced in the most thorough manner with steel, would be inadequate to properly resist earthquake. The ideal material would be one in which each piece is so designed or so tied that the whole would possess both strength and flexibility.

It is evident that in many of the damaged steel frame buildings too much reliance was placed upon the frame and not sufficient care was given to the masonry. Poor mortar, poor bonds, and a structurally weak material could never successfully clothe even the best steel frame. The envelope must be applied with the utmost care, and in all these buildings it is economy to use Portland cement mortar. This has been conclusively proved by the example of the Palace Hotel, which appears to have been built upon honor, of good bricks, laid in excellent mortar, and which stood the shock far better than some of the steel frame buildings.

CONCRETE VS. HOLLOW TILE.

A WRITER in the San Francisco *Chronicle* of May 18 says: "Engineers and others whose hastily pronounced opinions have flown into print are, many of them, representatives of, or interested in, concrete construction. Few people understand what concrete is or that in its use there lies greater opportunity for the use of inferior materials than in any other construction, and it is universally admitted that poor concrete is absolutely worthless. Hon-

esty has not been the general policy of concrete constructors, and, unfortunately for San Francisco, the sand banks are too near at hand.

"The papers have been full of the statements as to concrete being the only material for properly protecting the steel in buildings, which are unfounded in fact. A hasty glance at the first floor of the St. Francis, which evidently is all that was given by the engineer for a concrete construction company, reveals the fact that concrete afforded protection to the steel columns of this floor, as intended. However, all the other floors of the St. Francis had the steel columns incased in hollow tile, and they are all standing and in perfect condition, except in two instances where the space was insufficient to incase with hollow tile of proper thickness.

"Any unbiased engineer who will examine the following buildings, the Chronicle, St. Francis, Mills, Crocker, Mutual Life, Union Trust, Claus Spreckels and James L. Flood, will agree in the opinion that in all of these buildings hollow tile fireproofing did its work of protecting the steel perfectly. The Fairmont is the most noteworthy example of the insecurity of concrete for protection to steel. Here the question arises, was the concrete fireproofing of the best quality and workmanship? Granted that it was not, what building ordinances can enforce honest work?

"A city of the dull grayness of concrete would defy all laws of beauty. Why, then, should we strive for a beautiful city? Concrete does not lend itself architecturally to anything that appeals to the eye. Let us pause a moment before we transform our city into such hideousness as has been suggested by concrete engineers and others interested in its introduction."

THE FIRE AND QUAKE TEST OF STEEL FRAME CONSTRUCTION.

MR. OSBORNE HOWES, chairman of the Boston Board of Underwriters, who is now in San Francisco, has this to say in a letter to the Boston *Herald*:

"The fire has again tested the fireproof buildings of steel frame construction and again they have come through the ordeal in a reasonably satisfactory manner. If all of the business section of San Francisco had been made up of structures like the Call Building or the Fairmont Hotel, which were of the protected steel-frame order of construction, the damage caused by the earthquake would have been insignificant, and there would not have been any fire worth speaking of. This is an admonition for the future which it would be well for Americans living in other cities besides San Francisco to take to heart. For the moment the leading citizens of this far western city are strongly of the opinion that the new San Francisco which is to spring from the ashes of the old metropolis must be of fireproof construction, but when one considers the increased cost of this class of building, the inevitable delay that will attend the efforts to obtain from the East or from Europe the needed structural steel, and the urgent desire that naturally will be felt to reestablish the thousands of business houses that have been broken up by the fire, it may be doubted whether these good intentions will lead to the general enforcement of these wise precautions.

"It seems to me, as I have already said, that the earthquake demonstrated that it was only the poorly constructed buildings that were seriously injured, and, indeed, the same statement holds true of the fire test. If the San Franciscans can be persuaded, in spite of the temptations I have referred to above, to put up only best of modern buildings for their factories and warehouses, there should be little apprehension felt elsewhere for the security of capital invested in their city.

"A walk through the streets of San Francisco furnishes convincing proof that the manner in which experiences such as those of the 18th and 19th inst. are to be averted in the future is by having the city rebuilt by the general use of the protected steel frame form of construction. Buildings of this type are said to have suffered practically no loss from the shock of the earthquake. It is impossible at this writing to make in most instances a careful examination of these interiors, but looked at from an exterior point of view they appear to be as structurally sound as they were before the fire, the damage being confined to windows and window casings and other wooden fittings, and to the crumbling of some of the finer stone carving and finishing. The great buildings of this type, such as those occupied by the Emporium department store, the St. Francis Hotel, the Fairmont Hotel and the *Call* newspaper, look to the outside observer as though they might be entirely repaired for an outgo not greater than twenty or thirty per cent of their value. This restriction in extent of loss was evidently due to the proper protection of their steel beams and columns, for in scores of instances in buildings of ordinary construction where unprotected steel beams and columns were used, these can be seen buckled and twisted into all forms of distortion by the direct action of the intense heat."

COMMENTS BY THE CALIFORNIA STATE BOARD OF ARCHITECTS.

"THOROUGH inspections and investigation have been made through the burnt district, and it has been found that safety is not a question of style of architecture, but quality of workmanship.

"Cornices and arches need not be excluded from the new city. Where they are properly anchored and built they withstood the shock and fire both. It is the opinion of the Board that the city need not be without its picturesque cornices and decorations. The Call and Kohl buildings are proof enough that good work on decorations will insure them against destruction.

"The pile foundation has been found to be the most substantial. In the earth's vibrations it rests as does a chip in the water. And the building rests securely upon it. Forty-five feet is advised as a safe depth for either pile or concrete foundations.

"The height makes no difference in the matter of safety. Any building supported by what is known as the cage steel frame will withstand any ordinary shake. It is necessary that San Francisco have its high buildings. With proper workmanship they can be built in such a way that they will be absolutely safe.

"Bay windows are not considered safe. And, though it is strongly urged that decorations be permitted, few projections should be allowed.

✓ Some Interesting Old Churches at Panama.

IN the city of Panama and vicinity may be found many interesting examples of architecture by Spanish and French architects of the sixteenth and seventeenth centuries.

The oldest, and the one which attracts most attention, is the "Old Tower." This tower is all that remains of one of the principal churches of the old town,—the walls of the building proper being nearly demolished. It stands sentinel-like, overlooking the bay and the site of the old town of Panama, which was destroyed by the Buccaneer Morgan in 1671. It is said that in this tower the people made their last stand against him. It is about five miles down the coast from the present city, and is so overgrown with a dense tropical jungle as to be almost inaccessible.

In the city proper, founded about 1672, the best examples of architecture are found in the Catholic



A GLIMPSE OF THE CATHEDRAL TOWER OVER THE HOUSE TOPS.



THE CATHEDRAL AT PANAMA.

churches of Santo Domingo, the Cathedral, Santa-Ana and Mercedes.

Of Santo Domingo, which was entirely of brick, there is little remaining but the famous arch, which has a clear span of thirty-seven feet, with a rise of seven feet nine inches. It is said that the first two attempts to build this arch failed, but the third time it stood, and is to-day a monument of the builders' skill.

The cathedral is the largest and most pretentious building in the city. The side walls are of stone and brick, plastered on the exterior, while the front is faced with a brownstone closely resembling unglazed terracotta. The façade has numerous niches which contain carved wooden figures which seem to be in a good state of preservation. The tops of the two towers have a unique form of decoration. Large clamshells are embedded in the plaster in geometrical designs, forming a pleasing brightness in the sunlight.

The parish churches of Santa-Ana and Mercedes rank next in size and architecture. They are built of brick and stone, plastered on the exterior. With the cathedral, they were probably built soon after the old city was destroyed. Mercedes presents a pleasing composition with its little chapel at the near corner and a vault on the opposite side.

These examples show that the architecture in Central America in this period was decorative and constructively strong, as the good state of preservation of the buildings show.



THE OLD TOWER OF PANAMA.



RUINS OF SANTO DOMINGO CHURCH, PANAMA.



MERCEDES CHURCH, PANAMA.



SANTA-ANA CHURCH, PANAMA.

Another Thought in Ecclesiastical Architecture.

THE problem of ecclesiastical architecture is not for the profession alone. It concerns us also, who are intimately associated with the interior life and responsibilities of the church. So, while the debate between twelfth century Gothic and sixteenth century Renaissance goes on, we, the laity, hold our own opinions. Traditional associations count for nothing unless the creed remain the same. The architect will solve his problem only as he keeps abreast of the developing thought of his generation. Every change in the theory of worship demands a corresponding change in the practice of architecture. Why should not the architect be an eclectic, able to think and work in established lines, ready also to cast aside traditional theories and develop a style consistent with modern interpretation? To the true worker there is no school. He recognizes the truth in all schools.

That ecclesiastical architecture and public worship are closely related is self-evident. We see the relation more readily in the story of the past. The Gothic cathedral of the thirteenth century represents the sociology and theology of that period. Lofty vaulting, splendor of stained glass, elaboration of ornament, massiveness of structure, clouds of incense kindled in the ignorant and superstitious worshiper a feeling of mystery and awe. The long nave served as an ambulatory for gorgeous processions. The priests, a privileged and detached class, performed the service in an unknown tongue. Such a service was a natural product of the thought of the age. It was not then known that the earth revolves around the sun nor that the blood circulates in the body. The art of printing had not been discovered. The feudal system held the mass of the people in abject vassalage, and both people and lords were subject to a supreme and despotic church. The cathedrals of the Old World are a priceless heritage as the expression of imaginative art. Massive walls, faultless proportions, thoroughness of workmanship, delicacy of conception appeal to the æsthetic sense. The impression made is often mistaken for true reverence, because we confuse the emotional with the rational character of religion.

So ingrained are the old theories of reverence that architects apparently find it difficult to think in or express other principles of worship. What the architect fails to discern is forced upon him by the subtle influence of our age. Physical science, democratic ideals and even industrial development ruthlessly destroy our Christian symbolism. The church spire, pointing heavenward, once represented the principle of aspiration. The symbolism ceased when modern study swept away the theory of a heaven located in the firmament. The principle of architecture which impels the worshiper to fall on his knees is a survival of mediæval theology. The rational interpretation is based on universal benevolence and filial relations between God and man. Intelligent worship does not ask that a church should inspire either awe or mystery. No sacredness attaches to the edifice; it is simply a suitable place where the congregation meets for instruction and inspiration. Necessity is the foundation

of art, and no creation is beautiful which fails in the true and useful.

In a teaching church the first test must be its acoustic properties. It frequently occurs that costly and magnificent churches are, by this practical demand, monstrous failures. The two great obstacles to effective speaking are height and space. The old rule should apply here, — the speaker's power diminishes according to the square of the distance. The demand is for shorter naves and lower walls, with no obstructing pillars.

The consecration of costly and magnificent buildings to the service of One who taught that the possession of great wealth makes entrance to His kingdom difficult is surely incongruous. Even the Mohammedans declare our elaborate systems of worship unchristian. They do not think that Jesus, who prayed in the wilderness and on the hillside, in the huts of the peasants, in the humble abodes of the fishermen, furnished any warrant for the gorgeousness of modern Christian worship, with all the accessories which beguile the mind, mystify the intellect, and thus divert the human heart from the worship of the great God toward a symbol and type.

The simplicity of our church building should be a rebuke to the materialism of this generation. Is it Christian to put millions of dollars in buildings which are used one day in seven, while nearly a third of the human family are living at the poverty line? Or, if every family were well housed and abundantly fed, every child educated, every social inequality rectified and money poured freely into the church treasury, would we be justified in the erection of costly edifices while retaining the name "Christian"? Must not the church building forever protest against the passion for vulgar display?

Simplicity in ecclesiastical architecture does not eliminate beauty; it rather leads to it, for simplicity is a necessary element of the beautiful. Faultless proportion, fitness of material, thoroughness of workmanship are the only mediums by which he must express fine artistic feeling and produce that which is really noble and true.

The decline of the churchgoing habit is attracting general attention. Are we to have abandoned pews as we have abandoned farms? This apathy does not indicate a decline in religious interest. A deep and widespread spiritual awakening is manifested in the development of applied Christianity. Improvement in social and industrial conditions, public health associations, peace conferences, arbitration treaties, international fraternity are some of the forms in which vitalized Christian thought is coming to expression. Both minister and architect must work in sympathy with these larger progressive ideals. The practical and rational must be their aim, rather than the emotional.

The dream of a national architecture which will be a true and lasting expression of American aims, ideals and life, as the cathedrals of the thirteenth century were types of their generation, can never be realized. In those days all minds were united in a common religious faith. In these days every one, even the unlettered, thinks for himself. The builders of the cathedrals were of one race and one climate. Americans are made up of every race, and our territory includes all climates. Our national style of architecture can be expressed only in diversity.

H. G. ECOB.

Editorial Comment and Selected Miscellany

COMPETITION FOR COTTAGE DESIGNS FOR CASH PRIZES AGGREGATING \$4,000.

GARDEN CITY, L. I., a beautiful suburban town on the Hempstead plains, nineteen miles from New York and about midway between the ocean and Long Island Sound, is so well known as hardly to need description. The town was founded and its development begun by the late A. T. Stewart. It is laid out with wide avenues, large parked areas and a wealth of foliage and shrubbery. It contains the fine cathedral church of the diocese of Long Island, St. Paul's School for Boys and St. Mary's School for Girls, the popular Garden City Hotel and the links of the Garden City Golf Club.

The extensive improvements in transportation facilities undertaken by the Pennsylvania Railroad have awakened a new interest in the Long Island suburban towns as residential centers, and in response to this demand the Garden City Company is about to undertake further development of its extensive holdings, and to this end has instituted an architectural competition in the hope that the younger members, at least, of the architectural profession may be interested to develop a type of suburban house design of moderate cost which shall combine beauty of design with economy of construction and maintenance. It has appointed a committee, consisting of Mr. Allen Evarts, president of the Garden City Company; Mr. William R. Mead, architect, of the firm of McKim, Mead & White; and Mr. Dean Alvord, real estate expert, who will conduct the competition and make the award. All designs are to be in the hands of the committee by August 1, 1906. The programme of the competition may be obtained on application to the Garden City Company, 60 Wall Street, New York.

The property in question consists of two tracts, each 112 feet by 1,200 feet, lying on either side of a street 52 feet wide. Two schemes of development are under consideration, one calling for the building of single detached houses to cost \$7,000 each, and the other for double houses of \$12,500 cost. For each scheme a first prize of \$1,000 and a second prize of \$500 is offered, and, in addition, ten prizes of \$100 each will be awarded to the next ten designs, whether of the single or double houses. The authors of the first and second prize designs are required to furnish complete working drawings, details and specifications of their designs, and in case the company shall decide to carry out any of the designs to which the \$100 prizes are awarded, it agrees to employ the authors of such designs to furnish working drawings and specifications upon the additional payment of a sum which, together with the \$100 prize award, shall equal three per cent of the cost of the building. The drawings required are a block plan, a block elevation, plans, elevations and section of one unit and an additional sheet to contain a perspective sketch, details or any other matter which the designer may wish to present, and rendered at his option.

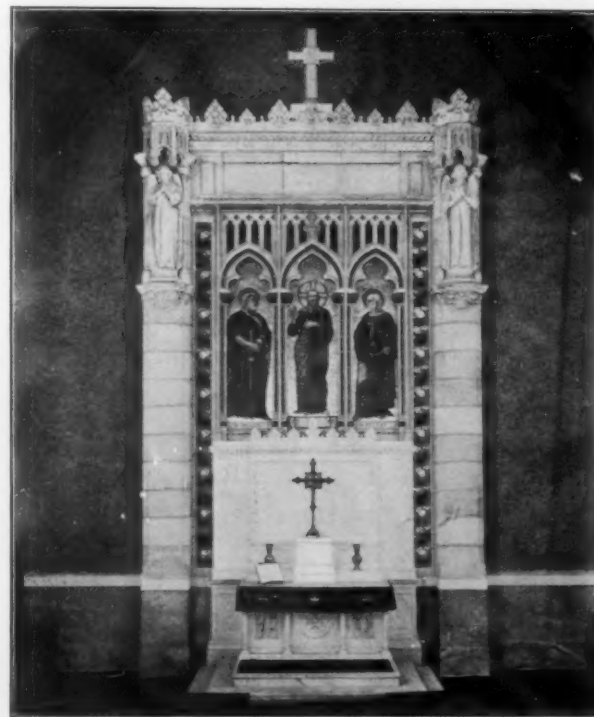
THE CONCRETE FAD.

THE use of methods of construction employing concrete as a base has expanded beyond all reason during the past few years. We say this advisedly while recognizing all of the excellent qualities which reinforced



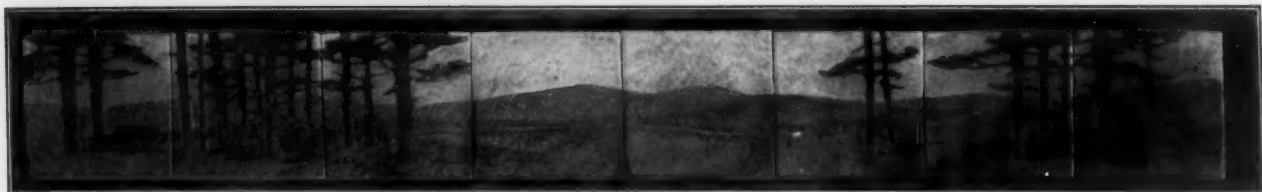
DETAIL BY STANDARD TERRA COTTA WORKS.
J. I. Campbell, Architect.

concrete possesses. But it is about time for the public to be disabused of the idea that the universal panacea of all constructive woes is to rush into reinforced concrete. This is an easy, slipshod way of getting over difficulties; but we are learning that it leads to other troubles quite as annoying as those from which concrete would deliver us. Any material which is fashioned so wholly by unskilled labor offers pitfalls for the unthinking and inex-



REREDOS, ST. PAUL'S CHURCH, ROCHESTER, N. Y.
Heins & La Farge, Architects.
Executed in faience by Rookwood Pottery Co.

perienced constructor. It is the fashion to suggest reinforced concrete, and it seems so simple, so straightforward and so all satisfying that we very easily forget how signally it can fail, and how it, of all materials, requires the closest care and offers us the least assurance against imperfect workmanship as the work progresses. It is the one building material in use to-day which is actually



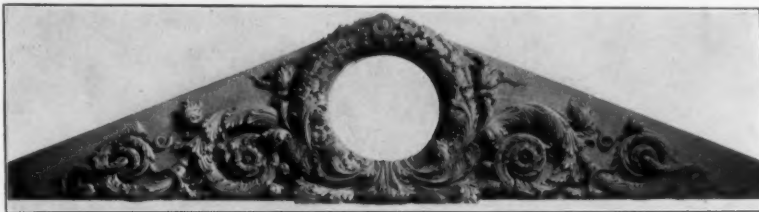
"THE PINES" TILE DECORATION FOR A FIREPLACE.
Grueby Faience Co., Makers. Addison B. Le Boutellier, Architect.

put into the building before it is finished, and of whose conduct under stress we can have no exact knowledge until months after it may be too late to change it. Let us use concrete for the great variety of purposes for which it is fitted, but let us also use it understandingly and intelligently.

FINANCING BUILDING OPERATIONS.

THE financing building contractor is a product of the last decade. His hand is already appearing in San Francisco, where several schemes have been suggested for financing on a huge scale the extensive building operations which are expected to follow the readjustment of the city's losses. A catastrophe of this sort is a splendid opportunity for the builder who offers to float the loan, and, if necessary, even lease the building, provided only he is given the contract. But there are pitfalls in this scheme which must be apparent to property owners. It is a pretty safe general rule that neither the architect nor the contractor can serve two masters with success, and if the builder is furnishing the money for a contract the temptation to use the power which he thereby acquires is more than most builders can withstand. It is to be hoped that as San

Francisco begins to emerge from its ashes, the speculative builder, even when backed up with untold millions of eastern money, will not be given a free field, but will be placed where he belongs — under the direction, the superintendence of a competent architect.



DETAIL BY CONKLING-ARMSTRONG TERRA COTTA CO.
Horace Trumbauer, Architect.

THE COLLINS MEMORIAL.

THE friends of the Honorable P. A. Collins, who died while holding the office of Mayor of Boston, have united to form a fund out of which a suit-

able memorial is to be erected in the city whose affairs he directed.

The committee of influential citizens having charge of this fund, after considerable deliberation, very wisely called in the advice of the Boston Society of Architects to aid it in the selection of a sculptor and of a site. By thus intrusting work of this sort to the society a precedent has been established which might well be followed in other cities, and if the Society of Architects is able to discharge its task in such a way as to secure the best artistic

results for the city, it will make it pretty hard for a choice to be made in other similar cases in any other way.

There is no body of professional men so well qualified



HOUSE AT GREENWICH, CONN.
H. C. Pelton, Architect. Roofed with "Old Mission" tile made by Ludowici-Celadon Co.



SYMBOLS EMPLOYED IN DECORATIVE TREATMENT OF ST. THOMAS CHURCH, MITTINEAGUE, MASS.
Excelsior Terra Cotta Co., Makers. John William Donohue, Architect.



COLONIAL TRUST BUILDING, READING, PA.
Seymour & Paul Davis, Architects.
Faced with Roman "Ironclay" fire-flashed brick.

to decide questions of this sort as the architects, and it is one of the duties which the profession owes the public to give its services in cases of this sort, and to give them in such manner as shall bring credit both to the city and to the profession.

THE BOSTON BUILDING DEPARTMENT.

DURING the last thirty-four years there have been but three Commissioners of Building in the city of Boston.



DETAIL BY SOUTH AMBOY TERRA COTTA CO.

The building laws of the city have on the whole been wisely and equitably administered, and the permanence in office which has been so marked a feature of the building department has been somewhat unusual in the annals of American cities. Disputes between the Building Department and architects and contractors are by the statutes adjusted through a board of appeals. One member of this board is appointed by the Master Builders' Association, another is appointed by the Boston Society of Architects, and a third is appointed at large by the Mayor. The appointees of the Master Builders and the Architects

have been renominated for each successive term ever since 1892. Mr. Arthur G. Everett has just received the renomination for the ensuing three years. Rotation in office has many advantages, but the city of Boston has evidently known when it was well off and has chosen to retain its tried advisers year after year.



DETAIL EXECUTED BY NEW JERSEY TERRA COTTA CO.

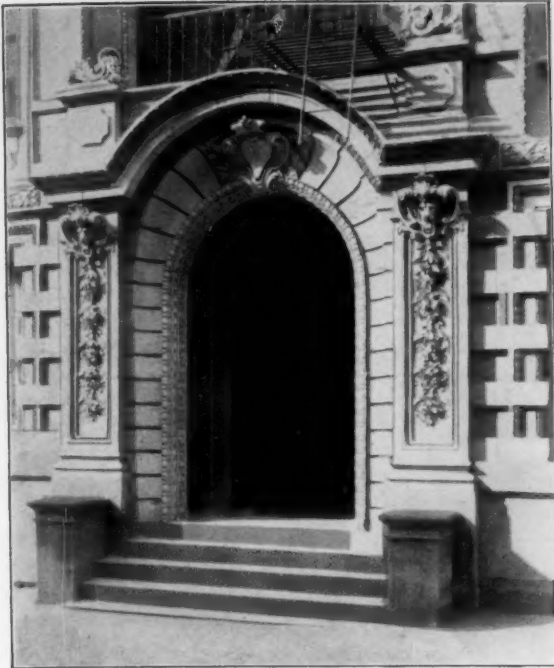
UNIVERSITY OF MICHIGAN.

THE University of Michigan has at last come into line with a number of institutions of higher education in this country by establishing a department of architecture. The organization of this department has been intrusted to Mr. Emil Lorch, who has made for himself an excellent record at Harvard, at the University of Pennsylvania and in his native city of Detroit.

There can be hardly any more discouraging task set to an enthusiastic, educated architect than to establish out of hand a department for teaching to raw beginners the details of his profession. This new department, however, will have the advantage of the excellent organization which in a few years has made such a success of the architectural department of Harvard University



HELLMAN BUILDING, LOS ANGELES, CAL.
A. F. Rosenheim, Architect.
Face and Enameled Brick made by Hydraulic-Press Brick Co.



ENTRANCE SHOWING TERRA COTTA TREATMENT.
New York Architectural Terra Cotta Co., Makers.

under Professor Warren, and will also be able to draw its lessons and experiences from the other schools which are multiplying so fast throughout the country. The nearest architectural school to Ann Arbor of national renown is at the University of Illinois, distant several hundred miles. Detroit is close at hand, and Mr. Lorch will undoubtedly be ably seconded by the architects of that city, and with the prestige of the University of Michigan to help it the new department ought to achieve a speedy success.



DETAIL EXECUTED BY PERTH AMBOY TERRA COTTA CO.
George B. Post & Sons, Architects.

BUILDING OPERATIONS FOR APRIL.

OFFICIAL reports from fifty leading cities of the country, received, tabulated and compared with previous records by *The American Contractor*, show no decline of the remarkable prosperity that has prevailed in the construction field for some time past. This statement must be taken as applying to the aggregate of cities, since a falling off is noted in some of them. As a rule, however, the larger cities show decided gains. Not that only, but these gains are widely distributed throughout the country and amply demonstrate that the building movement now in progress is founded upon the most comprehensive and stable national prosperity. This is one of the most encouraging features of the situation and clearly indicates a continuance of the present remarkable building movement.

The following figures show the percentage of gains in building permits granted in leading cities during April, as compared with the corresponding month of last year: Indianapolis, 10; Kansas City, 43; Memphis, 24; Mobile, 56; Nashville, 24; New Haven, 193; New Orleans, 85; Omaha, 18; Philadelphia, 22; St. Louis, 49; Seattle, 62; Syracuse, 58; Toledo, 26; Terre Haute, 80; Tacoma, 42; Washington, 21; Wilkesbarre, 304; Atlanta, 95; Buffalo, 114; Chicago, 66; Dallas, 165; Detroit, 42; Duluth, 162; Harrisburg, 57. In New York there is a falling off of 5 per cent, although Manhattan shows a gain of 5 per cent. This is decidedly favorable when the enormous building operations of 1905 are taken into account. The percentage of loss in other leading cities is as follows: Baltimore, 79; Chattanooga, 56; Columbus, 35; Denver, 13; Louisville, 36; Minneapolis, 43; South Bend, 66; Worcester, 12. The loss in Baltimore is accounted for by the fact that a permit calling for an investment of \$1,500,000 was issued to the Baltimore & Ohio Railroad Company in April, 1905, and Grand Rapids shows unfavorably on account of a \$150,000 permit issued in April, 1905.

THE SORT OF LAND UPON WHICH THE BUSINESS SECTION OF SAN FRANCISCO WAS BUILT.

MOST of the destruction done by earthquake in San Francisco was practically inevitable in view of the site upon



DETAIL BY WINKLE TERRA COTTA CO.
Eames & Young, Architects.

which the greater part of the business section of the city was constructed and the character of its composition. This was no less than a deep marsh originally covered with peat or open water. The site of Market Street was a long ridge of sand many feet above the surrounding levels and running from the hills near the Pacific toward Oakland Bay. The original water front of San Francisco was a fifth of a mile west of its present location, and that distance up Mar-

ket Street, measuring from the Oakland ferry terminal. To the south in the Mission district there was open water and a fine anchorage in what was then called Yerba Buena Cove. Stretching outward from Oakland Bay and with their farthest limits close to the present site of the new City Hall were many long swamps, which were in reality subterranean lakes, whose surface bore a strong formation of peat. Upon this men or animals and even loaded carts might move with safety if evenly and without shock. On the other hand, men and animals that incautiously leaped from one place to another shot through the surface peat and often disappeared forever as if in a quicksand.

Into these bogs for sixteen years from 1852, at two separate intervals, sand was dumped which had been torn from the hillsides by steam shovels that took out a cubic yard, a ton and a half, at each scoop. This heavy sand bore down the peat so that open water remained after vast volumes of sand had been placed upon the peat. When the swamps and mud flats were finally filled so that their surface was firm they were even then, and have ever since been, only more or less jelly-like masses. Through this infirm material all the pipes of the water and sewer system of San Francisco in its business districts and in most of the region south of Market Street were laid. When the earthquake came the filled-in ground shook like the jelly it is. The only firm and rigid material in its millions of cubic yards of surface area and depth were the iron pipes. Naturally they broke, as they would not bend, and San Francisco's water system was therefore instantly disabled. In 1846 forty acres around Portsmouth Square were the only available site for a city at San Francisco.

IN GENERAL.

The architectural terra cotta used in Memorial Hall and Mess Hall, Johnson City, illustrated in *THE BRICKBUILDER* for April, was furnished by the Excelsior Terra Cotta Company.



INTERIOR, THE RIALTO BUILDING, CHICAGO.
D. H. Burnham & Co., Architects.

Whole finish in enamel terra cotta made by Northwestern Terra Cotta Co.



DETAIL BY SCHICKEL & DITMARS, ARCHITECTS.
Atlantic Terra Cotta Co., Makers.

The New York offices of the National Fireproofing Company have been removed to the Flatiron Building, Madison Square. This move is made to secure increased facilities and in order to be near the center of building activity.

The following named architectural firms desire manufacturers' samples and catalogues: Charles Paff & Co., 1153 O'Farrell Street, San Francisco, Cal.; Armitage & Rowell, 1427 Post Street, San Francisco, Cal.;

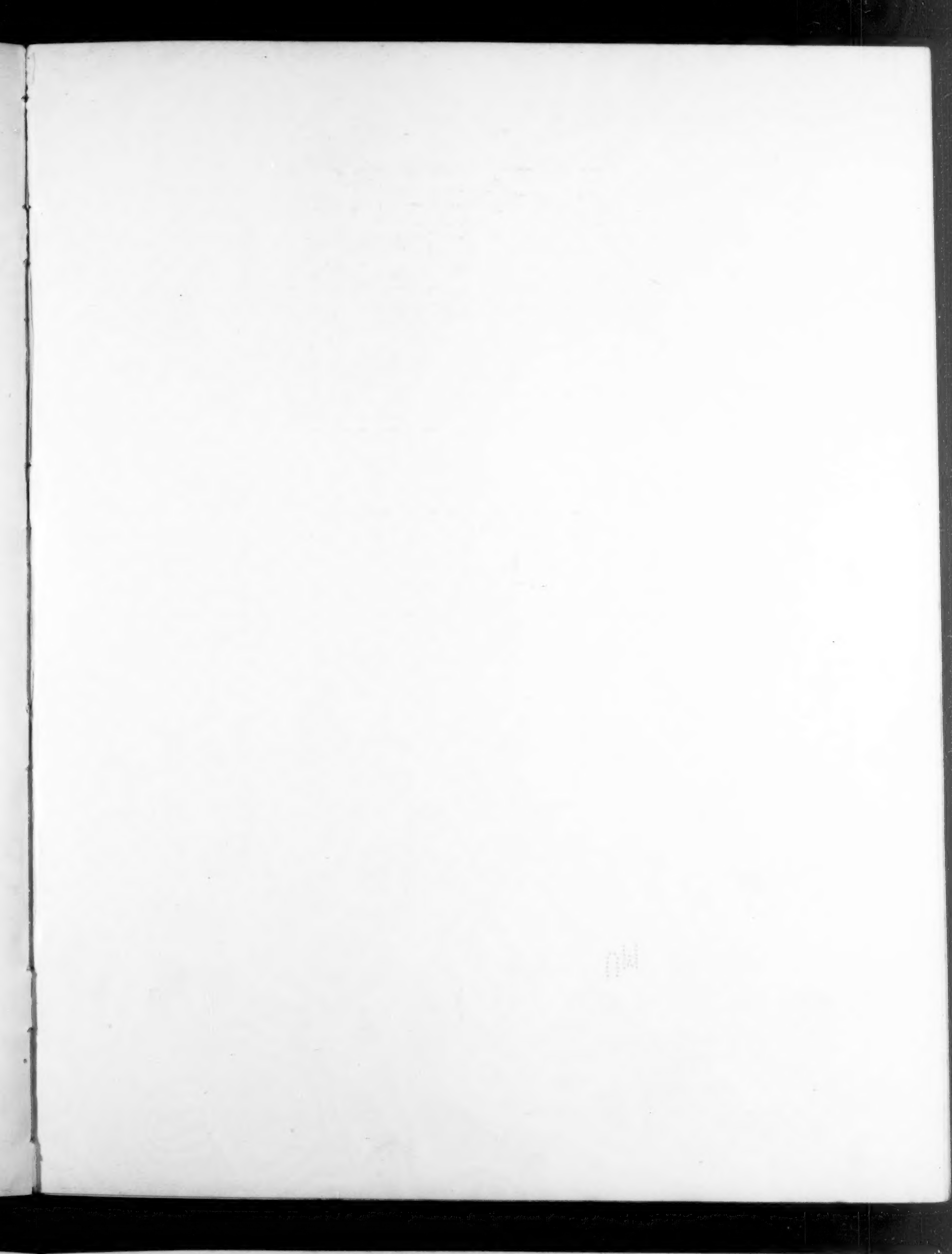
Schnaittacher & Boese, 1706 Fillmore Street, San Francisco, Cal.; Meyers & Ward, 1156 Webster Street, Oakland, Cal.; D. J. Patterson, 305 San Pablo Avenue, Oakland, Cal.; Charles E. White, Jr., Oak Park, Ill.; N. C. Curtis, University of North Carolina, Chapel Hill, N. C.

The new armory at Syracuse, N. Y., will be built of a dark flash Norman brick, made by the Ohio Mining and Manufacturing Company.

The Conkling-Armstrong Terra Cotta Company report the following new contracts: Maryland Institute, Baltimore, Md., Pell & Corbett, architects, sand-blasted glaze to match marble; library at Huntingdon, Pa., E. L. Tilton, architect, limestone finish; store building, Lancaster, Pa., C. E. Urban, architect, dull white enamel; Georgetown University, Rosslyn, Va., Ewing & Chapel, architects, limestone finish; Pennsylvania Building, Baltimore, Parker & Thomas, architects.

TO MANUFACTURERS, BUILDING MATERIAL MERCHANTS and others, wishing active, reliable representative in the San Francisco market, with large acquaintance among architects and property owners, Steel Frames, Cement, Fireproof Materials, Architectural Publications, Rolling Steel Doors, Iron Windows, Hard Wood Finish, Waterproof Materials, Building Trade Specialties. References. In reply please state clean-cut proposition and best terms. Address, A. E. ACKLOM, 2129 Eagle Avenue, Alameda, Cal.

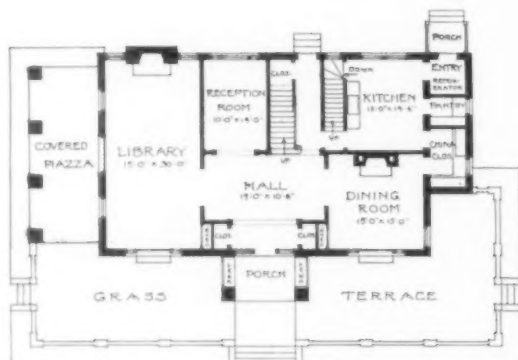
WANTED — Several competent architectural draughtsmen for positions in Chicago and middle West. Write, giving experience and references, G. Broes Van Dort & Co., 218 La Salle Street, Chicago, Illinois.



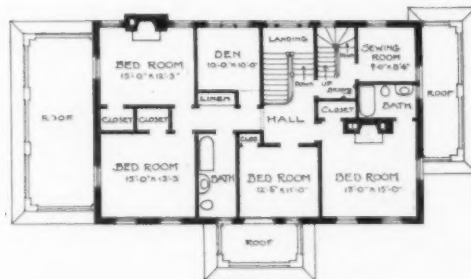


FRONT (SOUTH) ELEVATION

SCALE
0 5 10



FIRST FLOOR



SECOND FLOOR

SCALE FOR PLANS
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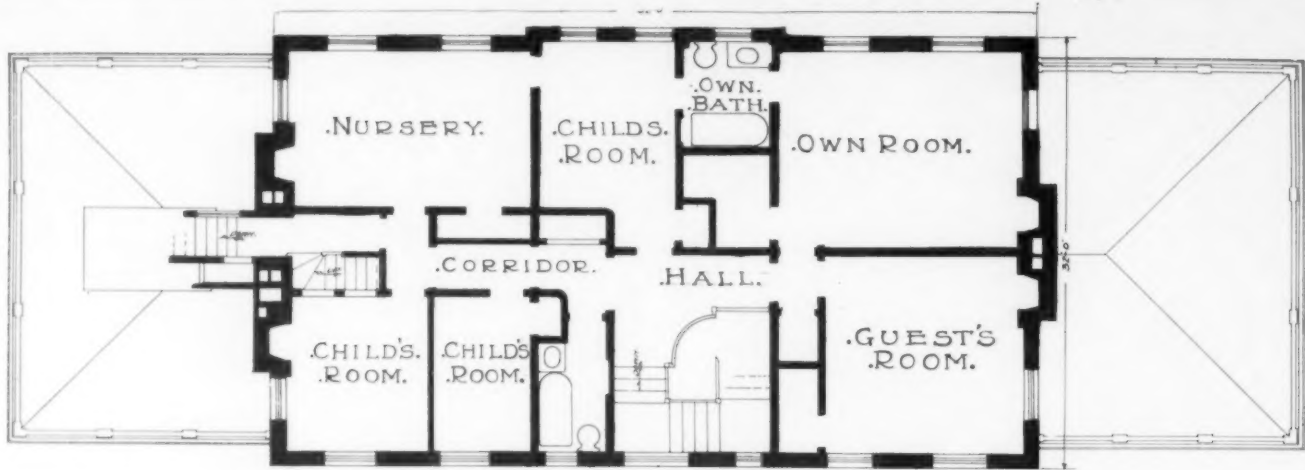


WEST ELEVATION

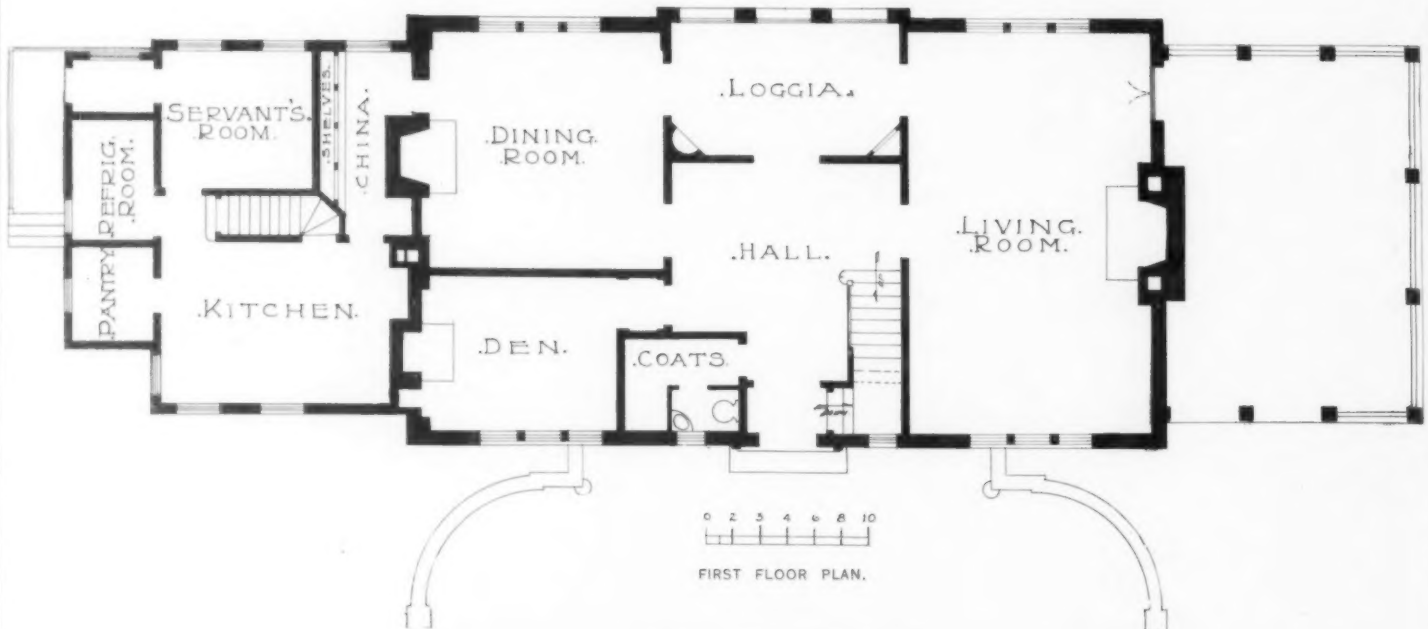
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DESIGN FOR A FIREPROOF HOUSE.

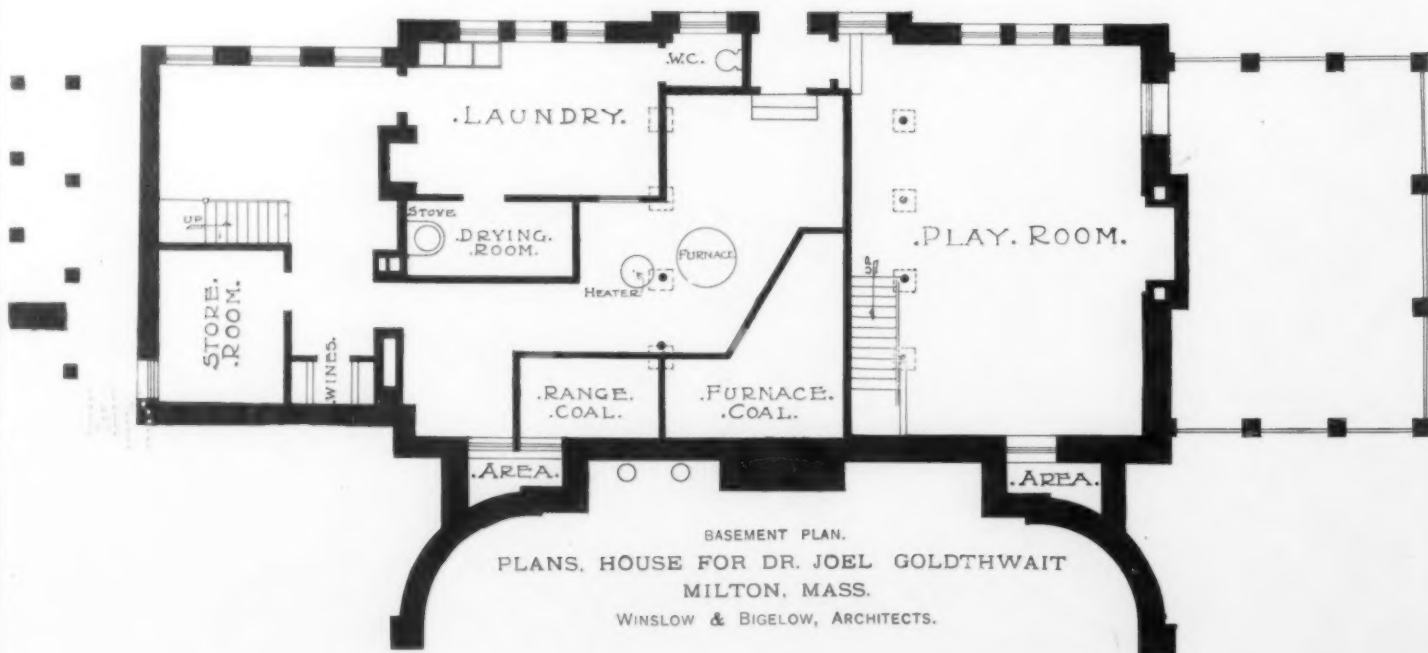
BENJAMIN PROCTOR, JR., ARCHITECT.



SECOND FLOOR PLAN.



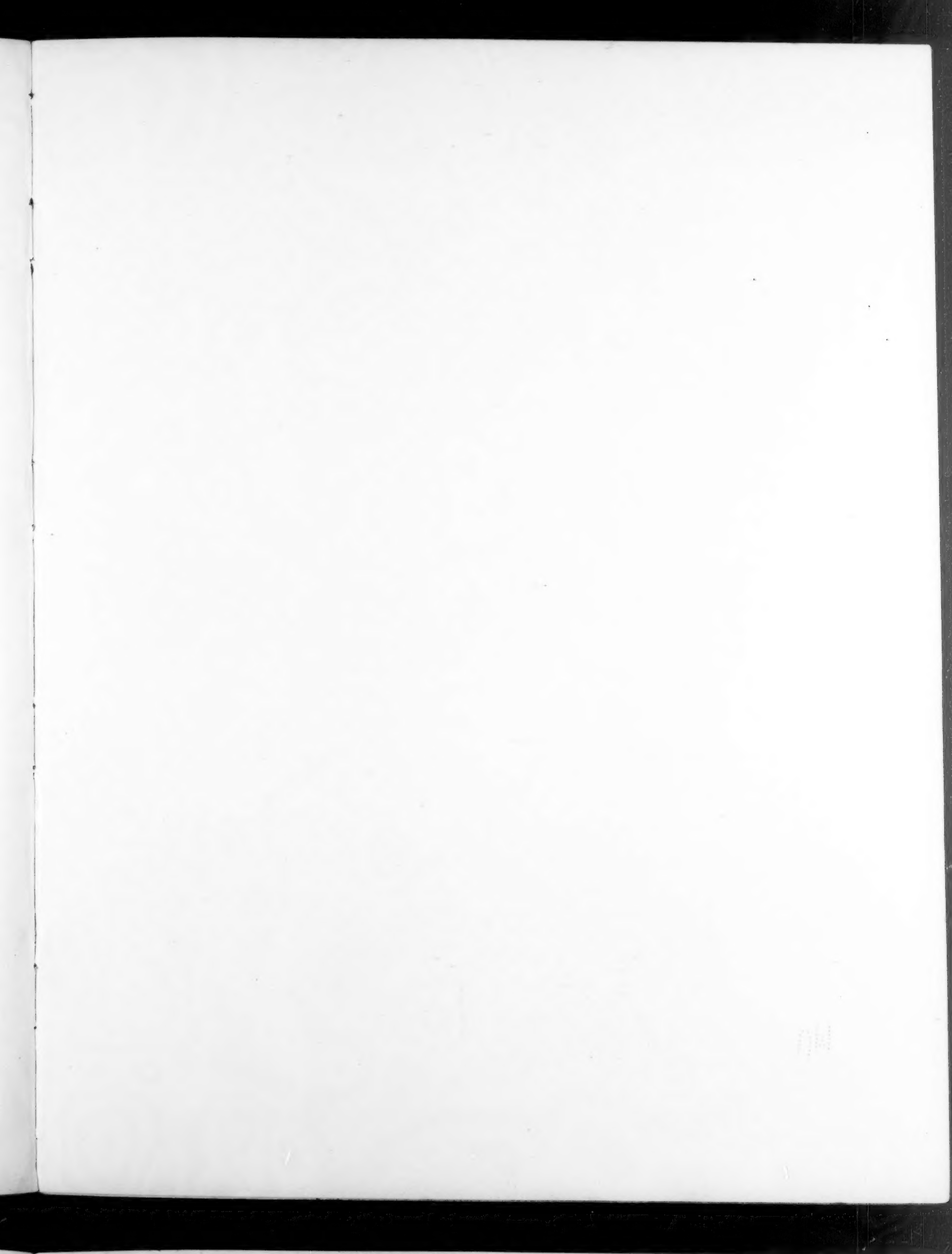
FIRST FLOOR PLAN.

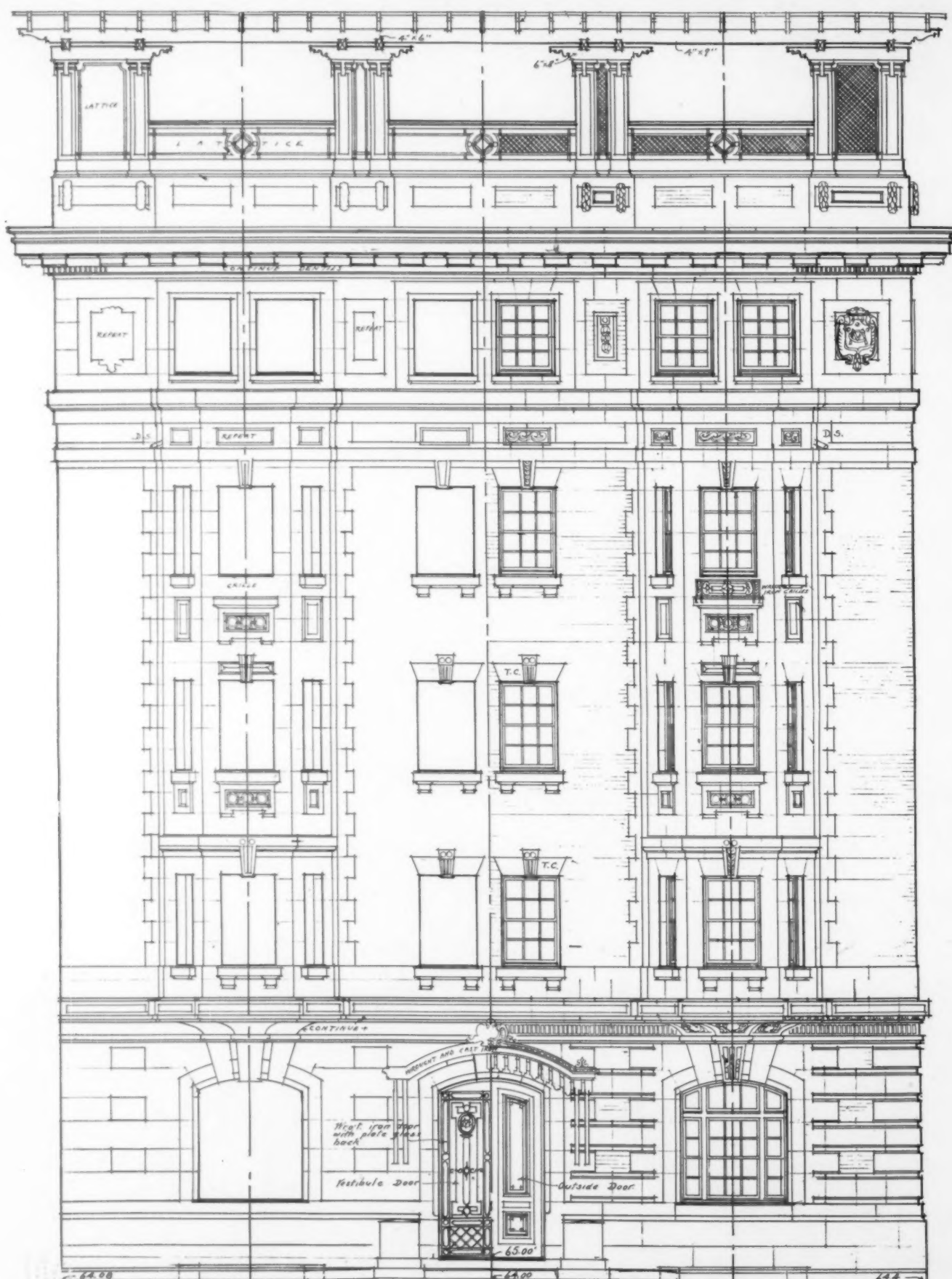


BASEMENT PLAN.

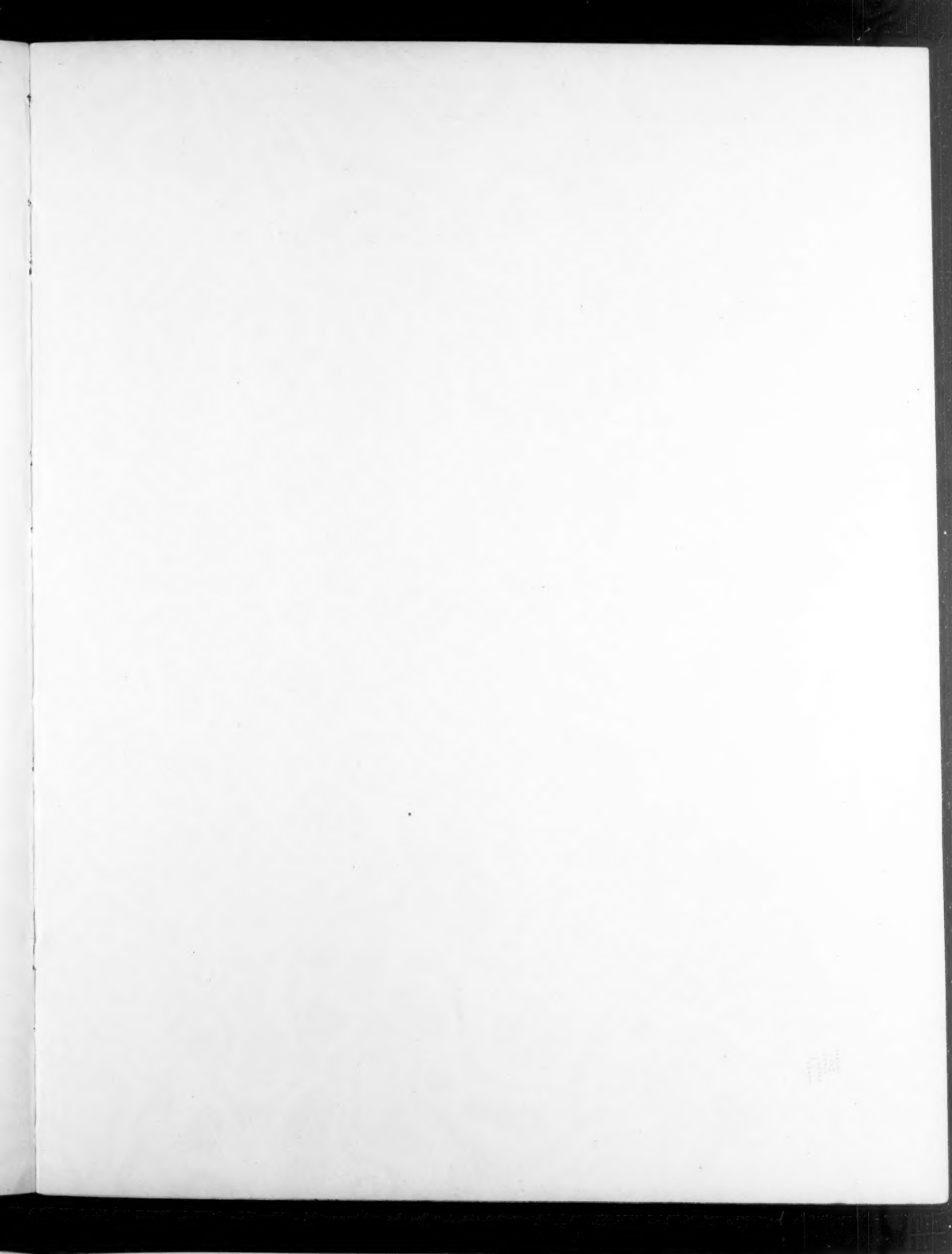
PLANS. HOUSE FOR DR. JOEL GOLDTHWAIT
MILTON, MASS.

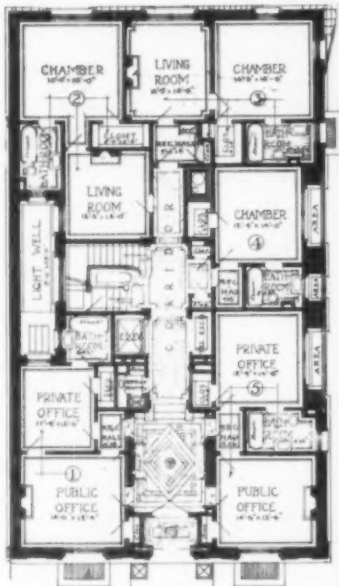
WINSLOW & BIGELOW, ARCHITECTS.



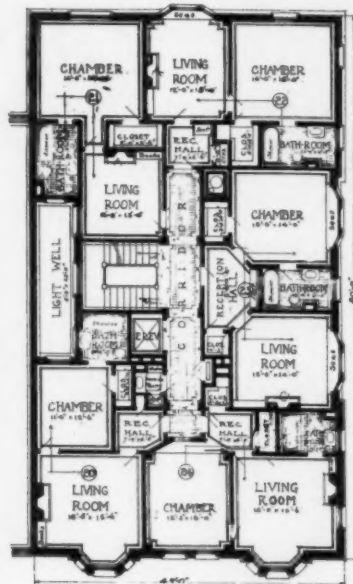


FRONT ELEVATION, BACHELOR APARTMENT AT WASHINGTON, D. C.
WOOD, DONN & DEMING, ARCHITECTS.





FIRST FLOOR PLAN



TYPICAL FLOOR PLAN.



BACHELOR APARTMENT AT WASHINGTON, D. C.
WOOD, DONN & DEMING, ARCHITECTS.

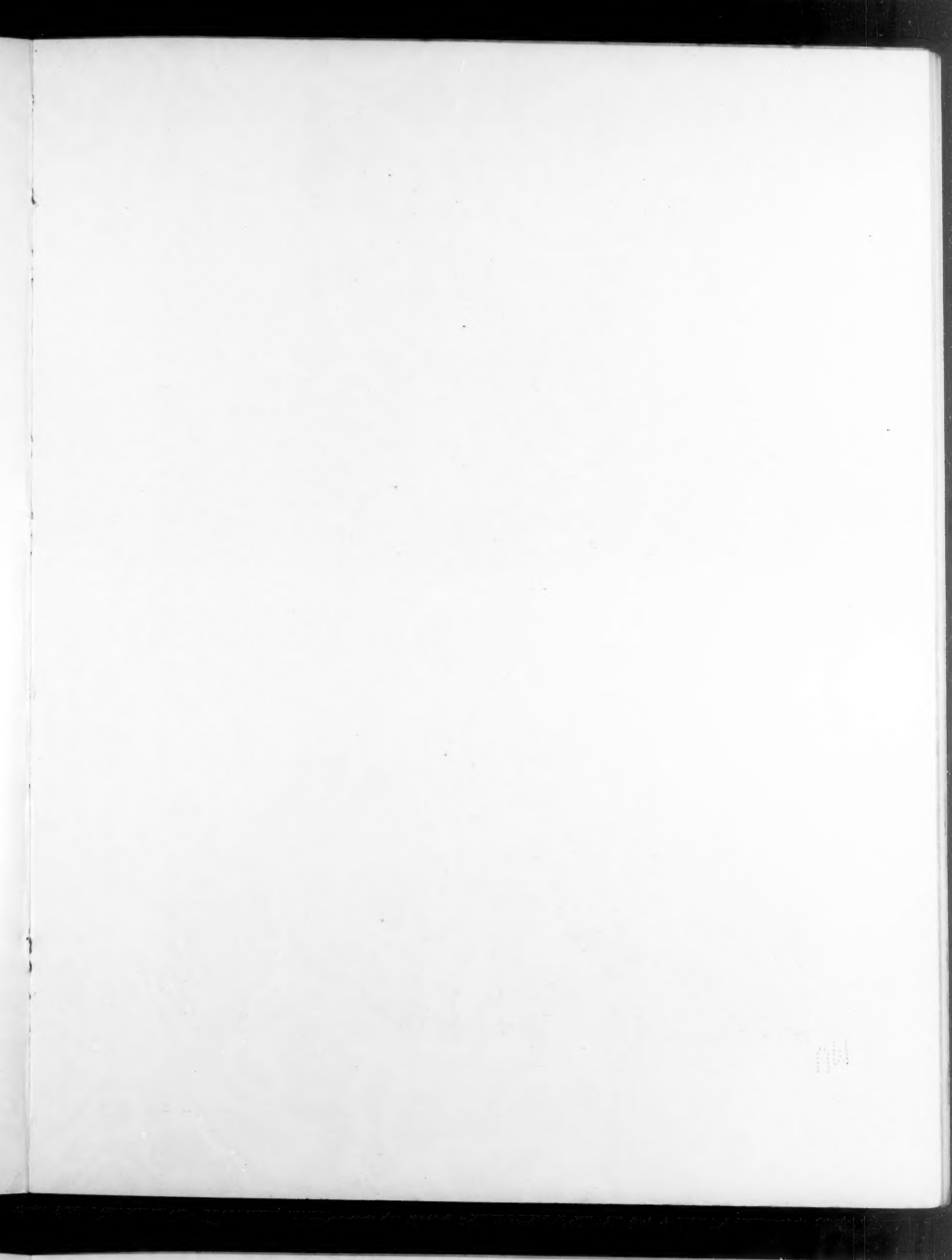


HOUSE AND STABLE FOR MISS ELIZABETH BLACK, MILWAUKEE, WIS.
ALEXANDER C. ESCHWEILER, ARCHITECT.

24

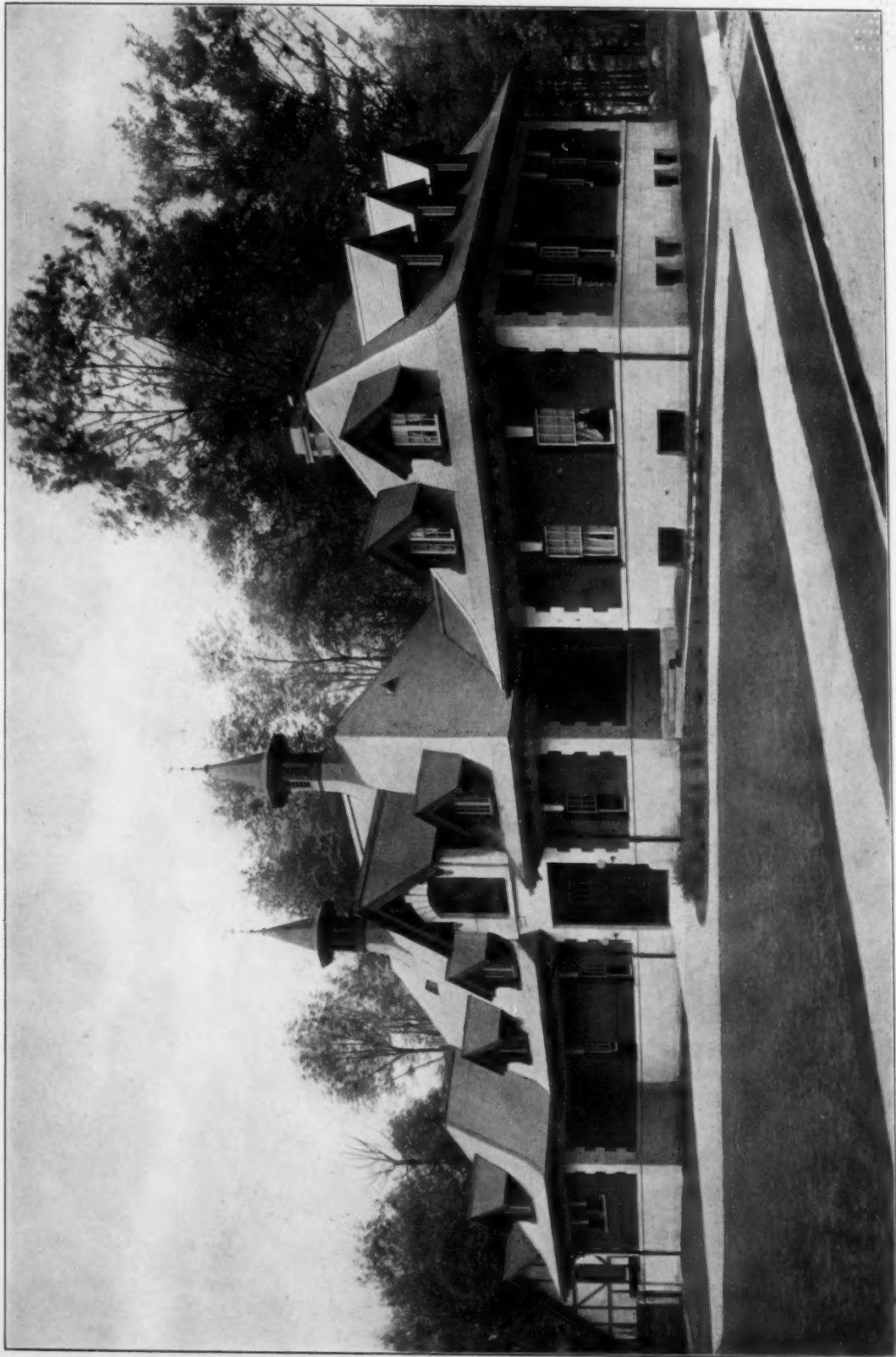


HOUSE FOR DR. JOEL GOLDTHWAIT, MILTON, MASS.
WINSLOW & BIGELOW, ARCHITECTS.





HOUSE FOR LOFTUS CUDDY, ESQ., CLEVELAND, OHIO.
J. MILTON DYER, ARCHITECT.



STABLE FOR LOFTUS CUDDY, ESQ., CLEVELAND, OHIO.
J. MILTON DYER, ARCHITECT.

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FIREPLACE IN LIVING ROOM.

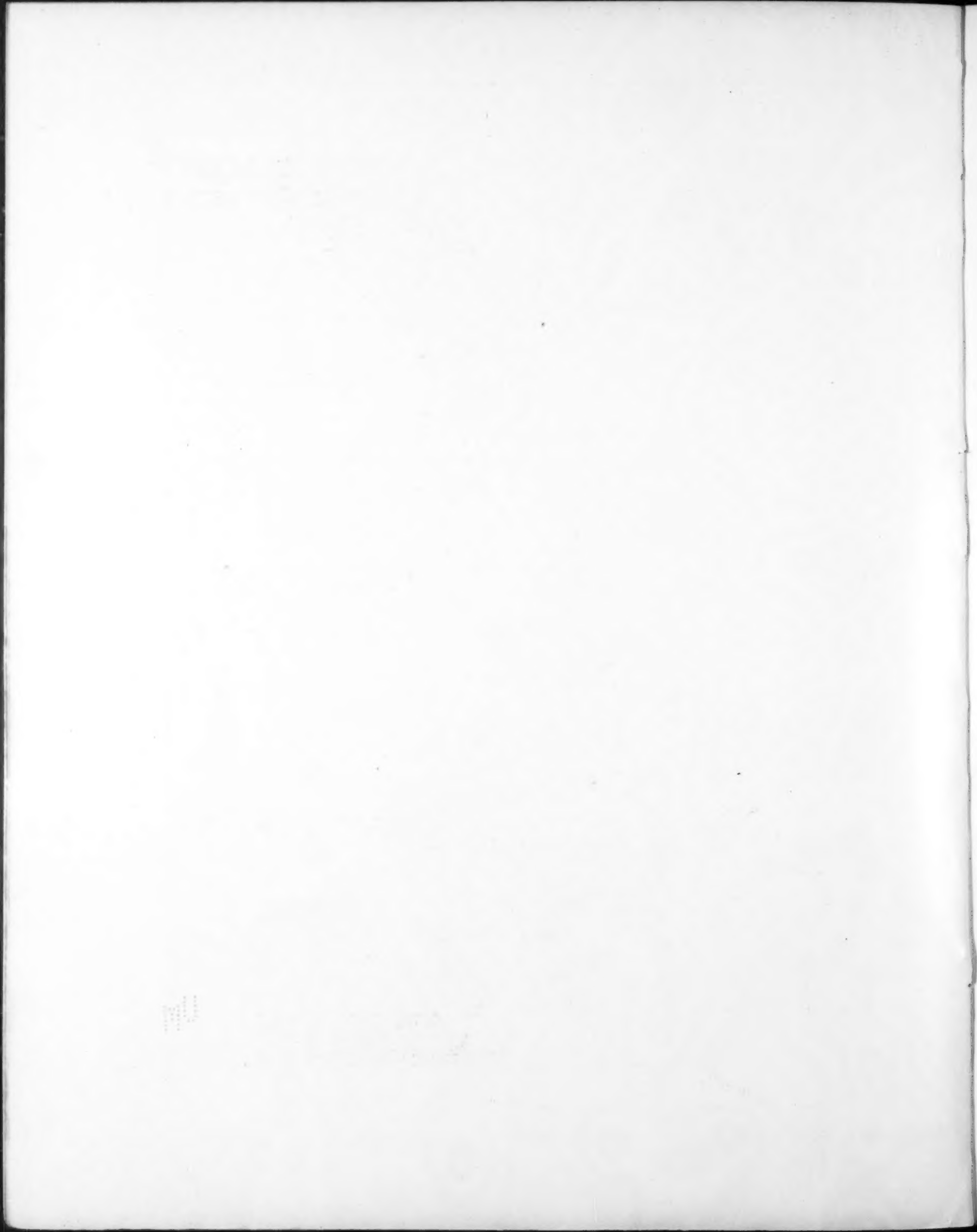


HOUSE FOR D. O. WICKHAM, ESQ., CLEVELAND, OHIO.
J. MILTON DYER, ARCHITECT.

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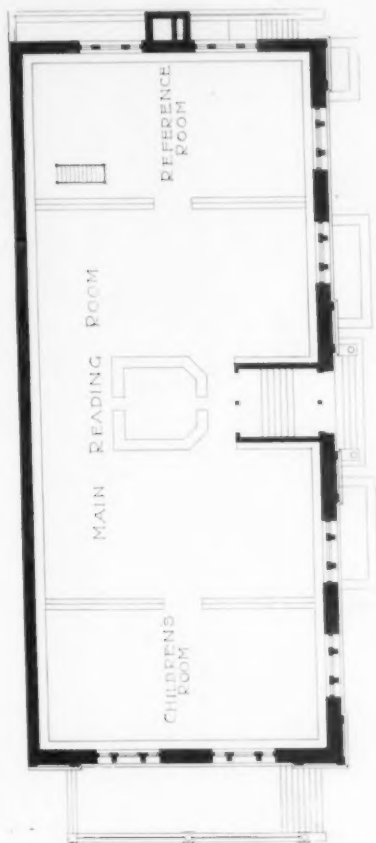
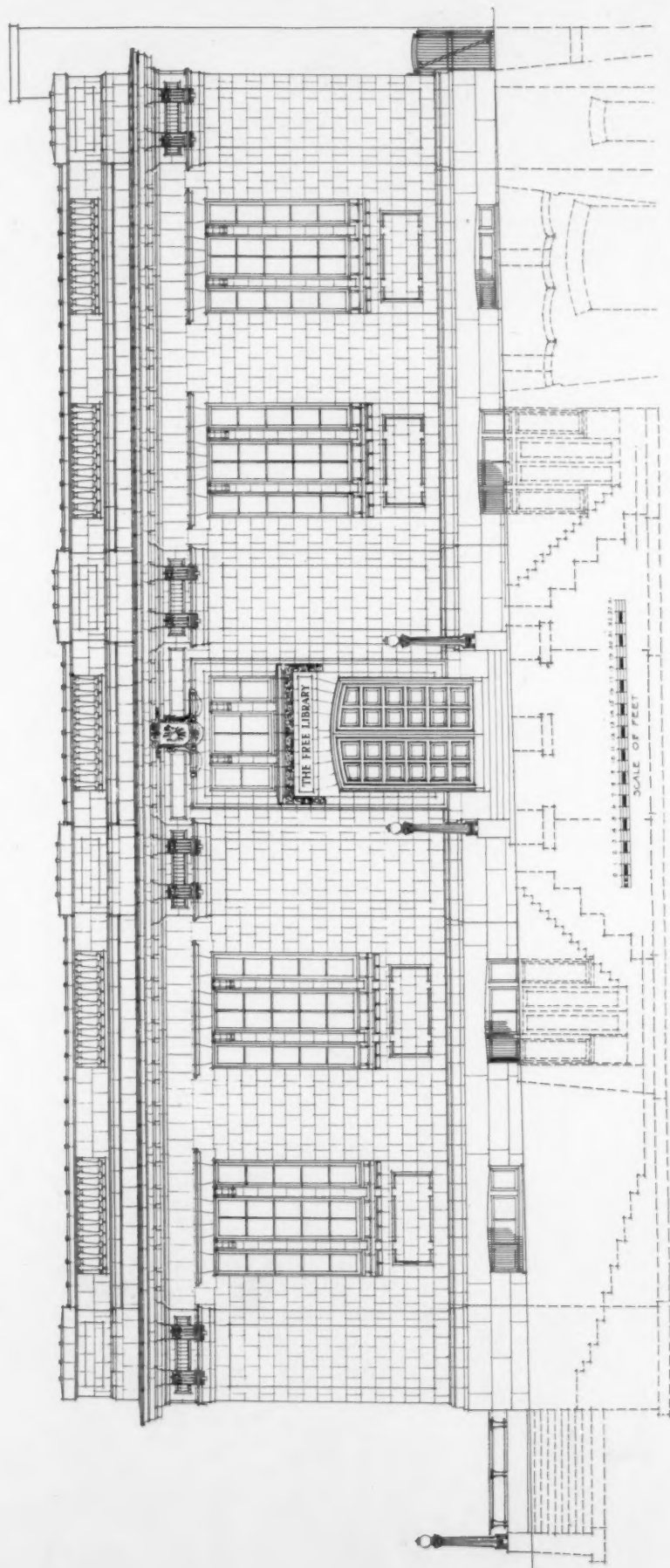
DETAIL OF FRONT ENTRANCE. HOUSE FOR MISS ELIZABETH BLACK, MILWAUKEE, WIS.
ALEXANDER C. ESCHWEILER, ARCHITECT.



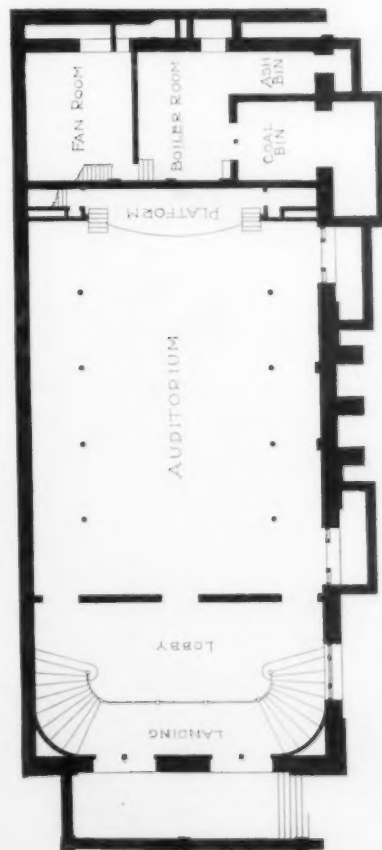


CARNEGIE BRANCH LIBRARY, WEST PHILADELPHIA, PA.
C. C. ZANTZINGER, ARCHITECT.

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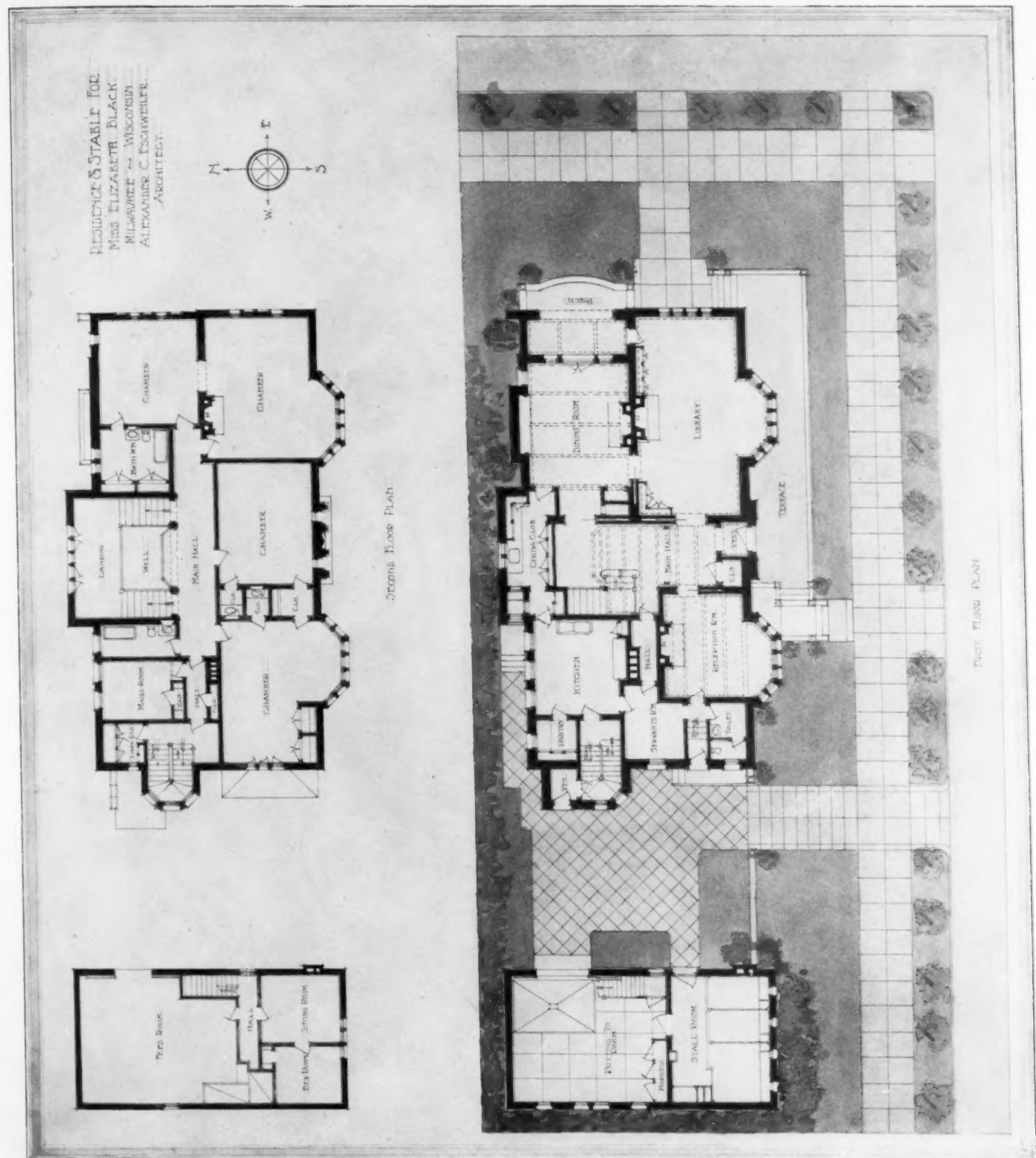
FIRST FLOOR PLAN.



BASEMENT PLAN.

FRONT ELEVATION AND PLANS, CARNEGIE BRANCH LIBRARY, WEST PHILADELPHIA, PA.
C. C. ZANTZINGER, ARCHITECT.

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PLANS HOUSE AND STABLE FOR MISS ELIZABETH BLACK, MILWAUKEE, WIS.
ALEXANDER C. ESCHWEILER, ARCHITECT.

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